# MGW 1100

## IPTV Encoding and Streaming Platform

**Version 5.5**

# November 2009

# Safety Instructions

- Use the following safety guidelines to help protect your MGW x100 unit from potential damage and to ensure your own personal safety.
- Make sure that only authorized personnel installs, connects and maintains MGW x100 and its components.

**When using MGW x100**

- MGW x100 is heavy. Rack-mount or remove MGW x100 from a rack with at least two people.
- Before installing MGW x100, unplug the system to help prevent electric shock or damage. Certain system board components continue to receive power any time MGW x100 is connected to AC power.
- To help prevent electric shock, plug the power cable into properly grounded sources. Use only properly grounded extensions and adaptors as the need arises.
- For AC platforms, use only a UL Recognized power cord.
- To connect DC platforms to external power supplies, use AWG12 wires.
- Make sure that MGW x100's chassis is properly grounded.
- Make sure that nothing rests on your MGW x100 power cable and that the cables are not located where they can be stepped or tripped over.
- Do not spill food or liquids on your MGW x100 unit.
- Do not push any objects into free slots of your MGW x100 unit. Doing so will damage your MGW x100 unit and can cause fire or electrical shock by shorting out interior components.
- Keep your MGW x100 unit away from radiators and heat sources. Also, do not block cooling vents. Avoid placing loose papers underneath your MGW x100 unit. Do not place your MGW x100 unit in a closed-in wall unit or on a bed, sofa, or rug.
- When you disconnect a cable, pull on its connector or on its strain relief loop not on the cable itself. Some cables have a connector with locking tabs; if you are disconnecting this type of cable, press in on the locking

tabs before disconnecting the cable. As you pull connectors apart, keep them evenly aligned to avoid bending connector pins. Also, before you connect a cable, make sure that both connectors are correctly oriented and aligned.

- **ESD Warning**: Normal handling precautions should be taken to avoid static discharge.

**Note**

- Certain specified modular components can be removed and replaced. If you try to remove or replace a component other than specified, you will void your warranty.
- Do not try to open or replace parts of modular components, as this will void your warranty. Modules (fan trays, power supplies) can only be replaced as an entire unit. The replacement must be an Optibase spare part. Using parts other than Optibase original spare parts can create hazards and will void the warranty.
- Depending on the power supplies installed, MGW x100 must be powered either by 100 - 240 V AC or dual 36-72 V DC. Connecting AC power supplies to a DC source or vice versa will severely damage MGW x100 and possibly cause personal injury.
- Make sure that you never insert both DC and AC power supplies into the same platform. This will severely damage MGW x100 and cause personal injury.
- Do not insert AC power supplies into DC powered platforms and vice versa. This may damage MGW x100 and void the warranty.

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Optibase has already modified its practices and processes to conform to the requirements in this important directive

# Contents

**Safety Instructions ..... 2**

**Trademarks and Copyright ..... 4**

**Installation Guide ..... 5**

System Overview ..... 6

- Main Features ..... 6

System Components ..... 8

- MGW 1100 Components ..... 8
- Peripheral Components ..... 10

Hardware Overview ..... 11

- Front Panel ..... 11
- Rear Panel ..... 11
- Service and I/O Boards ..... 12

Installing Hardware ..... 27

- General Tasks ..... 27
- Required Tools ..... 27
- Rack-Mounting MGW x100 ..... 27
- Installing Service and I/O Boards ..... 28

Connecting MGW x100 ..... 32

- Connecting MGW 1100 to the Power Supply ..... 32
- Connecting Host Controllers with Switches ..... 32
- Connecting to a Network for Management ..... 33
- Connecting to Networks and Devices for the Output ..... 33

Configuring MGW x100 ..... 39

- Accessing MGW x100's Command Line Interface ..... 39
- Setting Network Parameters ..... 48
- Enabling/Disabling Backup Channels ..... 49

Installing Software ..... 50

System Requirements ..... 50
Configuring the Management PC for the Network ..... 50
Installing MGW EMS ..... 50
MGW EMS - Managing Software Versions ..... 52
**User Manual ..... 56**
Accessing MGW x100 ..... 57
Users ..... 57
Working with several Units ..... 58
Main Window Overview ..... 61
The Boards Page ..... 61
The Channels Page ..... 62
The Platform Page ..... 63
Buttons and Displays ..... 68
Setting SAP (Session Announcement Protocol) ..... 69
Setting NTP (Network Time Protocol) ..... 71
Viewing and Setting Service Parameters ..... 73
Tools ..... 73
Host Controller Boards ..... 73
Switch Boards ..... 75
Encoders ..... 75
Encoder I/O Boards ..... 78
DVB Recasters and DVB Transraters ..... 84
DVB Transcoders ..... 88
Creating and Editing a Channel Profile ..... 90
Adding Channels ..... 90
Viewing Channels ..... 95
Editing Channels ..... 97
Removing Channels ..... 97
Managing Templates ..... 98
Managing Configurations ..... 98
Live Encoding Parameters ..... 104
Input Parameters ..... 104
Encoding Parameters ..... 104
DVB Recasting/Transrating Parameters ..... 127

DVB Input ..... 127
MPEG-1/2 Transrating ..... 128
DVB Transcoding Parameters ..... 129
Input Parameters ..... 129
Encoding Parameters ..... 129
H.264 Pass Through Parameters ..... 129
Target Parameters ..... 136
UDP Targets ..... 136
Secondary Stream Targets ..... 139
Version Management ..... 141
Operating Channels ..... 143
Transmitting Channels ..... 143
Stopping Channels ..... 143
In Case of Problems ..... 144
Alarms ..... 144
Where to find Error Messages ..... 144
Reports ..... 145
**System Specifications ..... 146**
Chassis ..... 147
Physical ..... 147
Enviornmental ..... 147
Electrical Characteristics ..... 148
Safety Standrads ..... 148
Host Controller Units ..... 149
Host Service Board - MGCS-5500 ..... 149
Host I/O Board - MGCI-5500 ..... 150
Switch ..... 151
Interphase ..... 151
Intel Switch ..... 151
H.264 Encoder ..... 152
Service Board - MGES-5610 ..... 152
MPEG Encoder ..... 156
Service Board - MGES-5200 ..... 156
Live Input ..... 159

Analog I/O Board - MGEI-5210A ..... 159
Digital I/O Board - MGEI-5210D ..... 159
DVB Input - Transcoding ..... 161
I/O Board - MGTI-5210X ..... 161
DVB Recaster/Transrater ..... 162
Service Board DVB Recaster - MGRS-5200 ..... 162
Service Board DVB Transrater - MGTR-5200 ..... 162
I/O Board - MGRI-5200 ..... 162
Pinout Specifications ..... 164
MGI Analog Audio Cable - WCA5197 ..... 164
MGI Analog Audio Cable - WCA5196 ..... 165
MGI Analog Audio Cable - WCA5199 ..... 165
**Maintenance ..... 167**
Troubleshooting ..... 168
While Installing and Configuring MGW x100 ..... 168
Using MGW EMS ..... 171
Alarms ..... 176
Major ..... 176
Minor ..... 179
Warning ..... 179
Error Messages ..... 181
Replacing Hardware Components ..... 182
Replacing a Board ..... 182
Replacing the Host Controller's Flash Disk ..... 184
Replacing Fuses ..... 186
Replacing a Power Supply ..... 187
Technical Support ..... 188
**Hardware Warranty ..... 189**
**Index ..... 191**

Chapter 1

# Installation Guide

**In This Chapter**


- System Overview 6
- System Components 8
- Hardware Overview 11
- Installing Hardware 27
- Connecting MGW x100 32
- Configuring MGW x100 39
- Installing Software 50

# System Overview

MGW x100 is an integrated IPTV encoding and streaming platform that lets carriers stream top quality TV over broadband IP networks such as xDSL, LMDS and FTTx. MGW x100 encodes and transmits MPEG-1, MPEG-2 or MPEG-4 AVC/H.264 video channels in real-time. It transcodes DVB MPEG-2 sources to all formats including MPEG-1 / MPEG-2 at lower bit-rates and MPEG-4/H.264, and converts MPEG-2 over DVB to MPEG-2 over IP (DTA). A single SNMP Element Management System (EMS) offers provisioning, monitoring, alarming and control capabilities and enables smooth integration into a variety of networks and access management applications.

The following diagram shows a typical configuration.

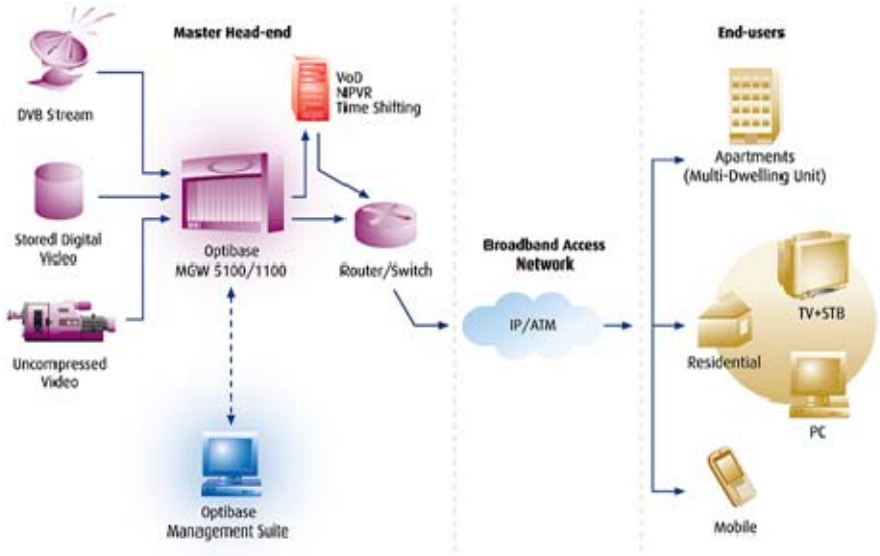



**Figure *1* .Typical Configuration**

## Main Features

Full redundancy on all components including channels.

- Encodes up to two MPEG-1, MPEG-2 and MPEG-4 AVC/H.264 channels per slot.
- Transcodes DVB MPEG- 2 sources to two MPEG- 1, MPEG- 2 or MPEG-4 AVC/H.264 streams per slot.
- Converts MPEG-2 over DVB to MPEG-2 over IP at up to an accumulated output bit-rate of 60 Mbps per slot (DTA).

- Converts and transrates MPEG-2 over DVB to five MPEG-2 over IP channels.
- Allows direct streaming of converted and transrated MPEG-2 over IP channels.
- Supports unicast, multicast and multi-unicast outputs.
- Supports IP over Gigabit/100BT Ethernet.
- Carrier grade cPCI 2.16 platform with hot-swap, hot-insertion of removable components and VxWorks real-time OS.
- Integrated solution with no single point of failure.

**Note**

MPEG-4 AVC/H.264 will be referred to as H.264 and DTA will be referred to as DVB Recasting from this point on.

Available encoding capabilities depend on the hardware configuration and the version you purchased.

# System Components

MGW 1100 consists of a 4U cPCI 2.16 chassis with 8 slots at the front and the rear. The entire platform is based on IP architecture that contains service and I/O boards. The MGW 1100 chassis and management application offer redundancy for power supplies and service units. The SNMP based EMS management application configures and operates MGW 1100 from any PC on the network. Additional peripheral components are needed to configure and operate MGW 1100. Required components are listed in the following sections. If not otherwise noted, Optibase supplies the respective components.

## MGW 1100 Components

| Chassis Components | Description |
|---|---|
| **MGW 1100 chassis** | Accommodates one host, one switch and 6 service boards with corresponding I/O boards. Fans and power supplies are pre-installed. |
| **19" rack-mount chassis** | Rack-mounts MGW 1100. |
| **Host Controller** | |
| MGCS-5500 Host Controller board (front) | Connects to the switch and to the network. |
| MGCI-5500 Host I/O board (rear) | Configures and manages the host controller and the MGW 1100 unit. |
| **Switch** | |
| **(MGW 1100 supports both:** | |
| **Intel** MGSS-1000 **and** Interphase 1500 (Interphase) Switch boards (front) | Connects to the host controller :<br>Intel switch – By cable<br>Interphase switch - through back plain (Provides interfaces for technician use). |
| MGSI-1100 Switch I/O board (rear) | Intel switch - not required<br>Interphase switch - not required |
| **H.264 Encoder** | |
| MGES-5610 (front) | Encodes H.264 streams. |
| MGEI-5210A (rear) | Connects analog video and audio sources. |
| MGEI-5210D (rear) | Connects digital video and audio sources. |
| **MPEG Encoder** | |
| MGES-5200 (front) | Encodes MPEG-1 and 2 streams. |
| MGEI-5210A (rear) | Connects analog video and audio sources. |
| MGEI-5210D (rear) | Connects digital video and audio sources. |
| **DVB Recaster** | |
| MGRS-5200 (front) | Recasts DVB to IP compliant streams. |
| MGRI-5200 (rear) | Connects DVB compliant video sources. |
| **DVB Transrater** | |

| | |
|---|---|
| MGTR-5200 (front) | Transrates DVB to IP compliant streams. |
| MGRI-5200 (rear) | Connects DVB compliant video sources. |
| **DVB Transcoder** | |
| MGES-5610 or MGES-5200 (front) | Re-encodes H.264 or MPEG streams. |
| MGTI-5210X (rear) | Connects and decodes DVB compliant video sources. |

**Table 1: MGW 1100 Chassis and Service Components**

**Note**

Install the host controller in the slot labeled Control and the switch in the slot labeled Switch.

| Cables | Description |
|---|---|
| **Power cord** | Connects MGW 1100 to AC power **(not supplied by Optibase)**. |
| 12AWG copper conductor for DC power supply | Connects MGW 1100 to DC power **(not supplied by Optibase)**. |
| 12AWG copper conductor for system ground | Connects MGW 1100 to the system ground **(not supplied by Optibase)**. |
| **Network cables (RJ45 cat 5e)** | Connects MGW 1100 to 10/100/1000BT network segments. |
| | Connects the switch to the host controller.(Intel switch only) **(not supplied by Optibase)**. |
| RJ45 cat 5e STP cable | Connects the host controller to the switch. .(Intel switch only) |
| **RS-232 null modem cables with two DB-9 type connectors** | Connects a PC to MGW 1100's host controller. |
| **Video cable with BNC connector** | Connects a Composite video source, a DVB-ASI compliant source or a video monitor to MGW 1100. **(not supplied by Optibase)**. |
| **2 MGI Analog audio cables per encoder** | Connects a balanced or unbalanced audio source to an encoder. |
| **2xBNC to MiniDIN Cable** | Connects an S-Video source to an encoder. |
| **2** MGI Decoder cables per DVB transcoder | Connects speakers or earphones to a DVB transcoder. |

**Table 2: MGW 1100 Cables**

| Software Components | Description |
|---|---|
| MGW EMS | Installs on a PC on the network and manages MGW 1100. |
| | The PC with MGW EMS installed is referred to as Management PC. |
| Command line interfaces | Lets you set and change basic parameters via HyperTerminal or Telnet. |

**Table 3: MGW 1100 Software Components**

## Power Supply

MGW 1100 is available for AC or dual DC power. Depending on the platform you purchased, the power supplies operate at 100-240V AC or dual 36-72V DC. Dual DC inputs ensure continued power supply if one DC source fails.
The power supplies can be replaced while operating as explained in the maintenance manual.

**Note**

- Before installing power supplies, verify that the required voltage is supported in the relevant location.
- Make sure that you never insert DC power supplies into an AC powered platform and vice versa.
- Make sure that you never insert AC and DC power supplies into the same platform as this will severely damage MGW 1100 and cause personal injury.
- If necessary, replace power supplies one by one or switch MGW 1100 off before replacing.

## Peripheral Components

To configure network settings and receive streams, you need peripheral components, which you may purchase from Optibase if not otherwise noted.

| Required Components | Description |
|---|---|
| **PC (Windows 2000 or XP) on the network.<br>This PC must have MGW EMS installed and is referred to as Management PC.** | Manages and operates MGW 1100 using MGW EMS. This PC also accesses MGW 1100 via Telnet to configure basic parameters **(not supplied by Optibase)**. |
| **Optional Components** | **Description** |
| **PC (Windows 2000 or XP) with a free serial port** | Connects to MGW 1100's COM1 and uses MGW 1100's command line interface to configure basic network settings via HyperTerminal **(not supplied by Optibase)**. |
| IP compliant set top box | Decodes MPEG-1 and 2 streams. Contact Optibase for supported set top boxes. |

**Table 4: MGW 1100 Chassis Components**

**Note**

If you use MGW 1100's command line interface, do not try to configure parameters other than those listed in the command line interface's help.

# Hardware Overview

## Front Panel

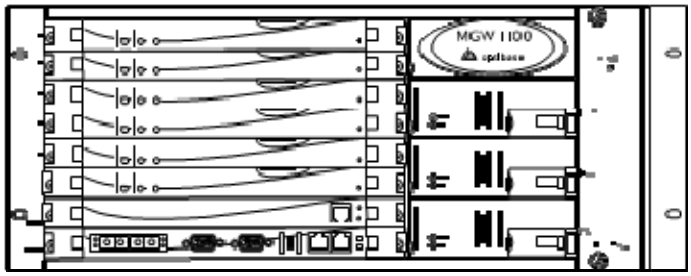



**Figure 2 .MGW 1100 Front Panel**

| System LEDs | LED Status | Description |
|---|---|---|
| Fan Status (Optional) | Off | At least one fan is running too slow. |
| | Green | The fans are operating properly. |
| **Power Supply:** | Off | No power. |
| Power LED | Green | Power on. |
| **Power Supply:** | Off | No error or no power. |
| Error LED | Yellow | Power supply error. |

**Table 5: LEDs on MGW 1100 Front Panel**

## Rear Panel

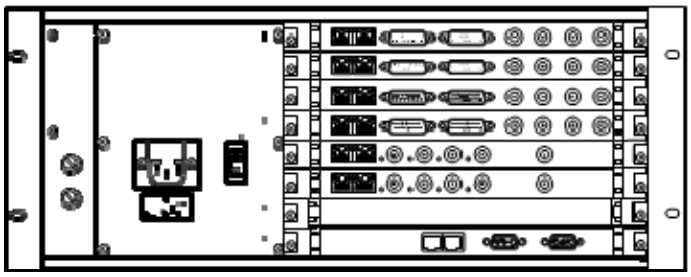


**Figure 3 .MGW 1100 Rear**

## Service and I/O Boards

- MGW 1100 accommodates up to six live encoders, DVB recasters, DVB transraters or DVB transcoders. Some boards are available as standard or premium versions. The premium version offers all services available for the relevant board while the standard version offers selected services. Available services can be found on the associated Service Board parameter page. For additional information, refer to the user manual. The various boards install into the following slots: the host controller is installed in the slot labeled Control.
- The switch service board is installed in the slot labeled Switch at the front. In systems using the Interphase switch the I/O board is not in use anymore.
- Encoders, transcoders, transraters and recasters are installed in slots 3-8.

The following pages describe MGW 1100 service and I/O boards.

**Note**

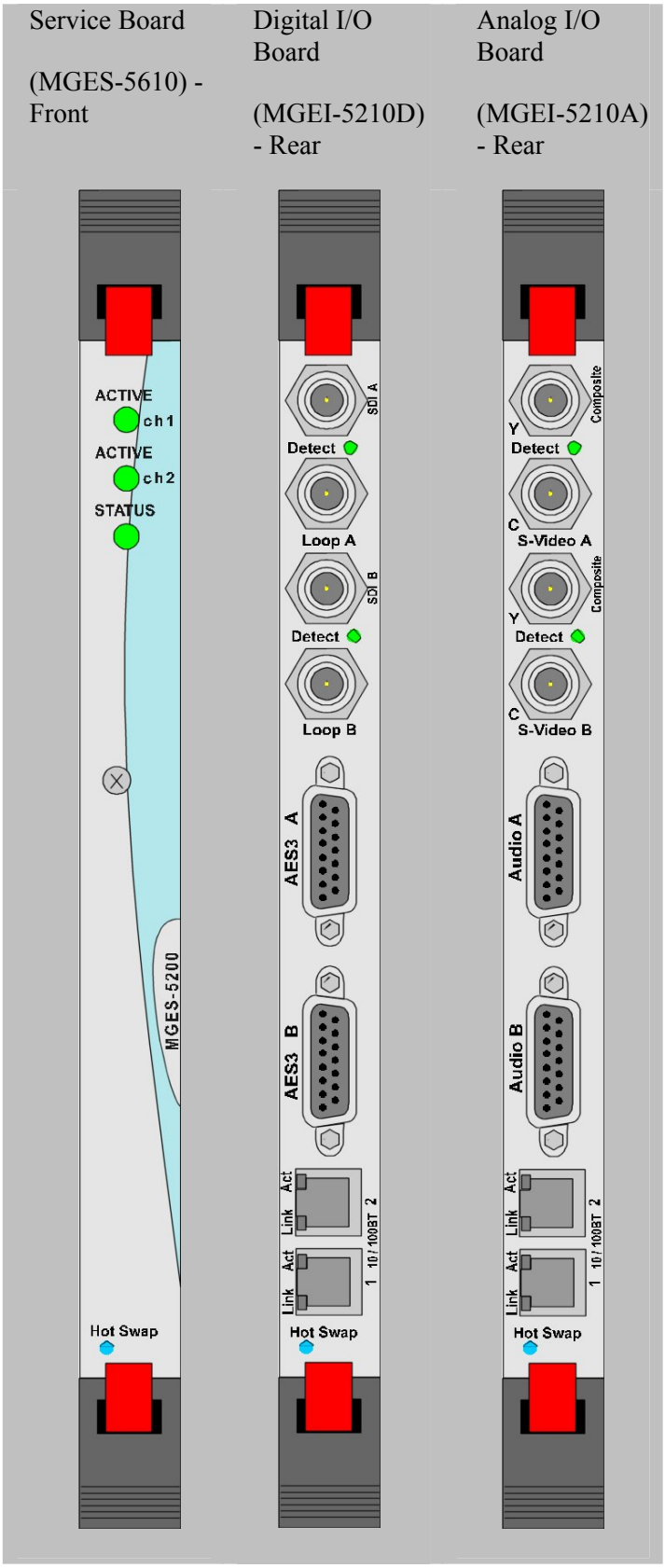
- Make sure to install boards in the correct slots. Otherwise MGW 1100 will not operate properly.
- Make sure to install only boards that are associated with MGW 1100. If you try to install and operate boards from third parties, not explicitly authorized by Optibase, MGW 1100 may fail and your warranty will become void.
- Make sure to install corresponding service and I/O boards in the matching front and rear slots respectively.
- Make sure to cover all empty slots with slot covers.
- Make sure to remove and install the host controller and/or the switch only when the MGW 1100 unit is switched off.

## H.264 Encoder

The H.264 encoder boards can be installed in:

- MGW 5100: slots 1 - 6 and 11 - 17.
- MGW 1100: slots 3 - 8.
- MGW 1000: slot 1.

- Each H.264 encoder supports two video channels and up to two audio channels per video channel.
- For explanations on connectors and LEDs, click the relevant connector or LED.


Service Board
(MGES-5610) - Front
Digital I/O Board
(MGEI-5210D) - Rear
Analog I/O Board
(MGEI-5210A) - Rear
ACTIVE
ch1
ACTIVE
ch2
STATUS
MGES-5200
Hot Swap
SDI A
Detect
Loop A
SDI B
Detect
Loop B
AES3 A
AES3 B
Act
Link
Act
Link
10/100BT 2
10/100BT 1
Hot Swap
Composite
Y
Detect
C
S-Video A
Composite
Y
Detect
C
S-Video B
Audio A
Audio B
Act
Link
Act
Link
10/100BT 2
10/100BT 1
Hot Swap

**Related Topics**

- Analog Input Parameters
- Digital Input Parameters
- H.264 Encoding Parameters
- Targets
- H.264 Encoder Service Board Parameters
- Encoder I/O Board Parameters

## MPEG Encoder

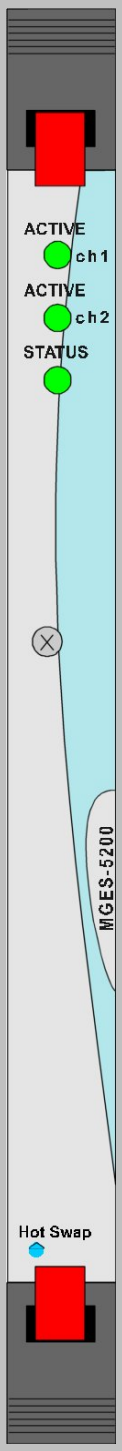
The MPEG encoder boards can be installed in:

- MGW 5100: slots 1 - 6 and 11 - 17.
- MGW 1100: slots 3 - 8.
- MGW 1000: slot 1.

- Each MPEG encoder supports two video channels and up to two MPEG audio channels per video channel.
- For explanations on connectors and LEDs, click the relevant connector or LED.

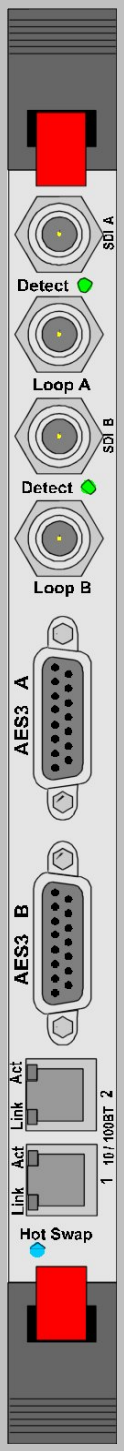
Service Board

(MGES-5200) - Front



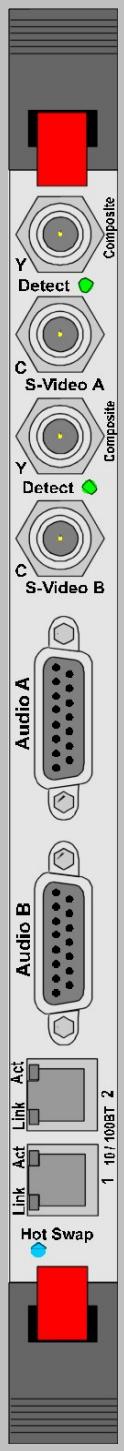

Digital I/O Board

(MGEI-5210D) - Rear




Analog I/O Board

(MGEI-5210A) - Rear



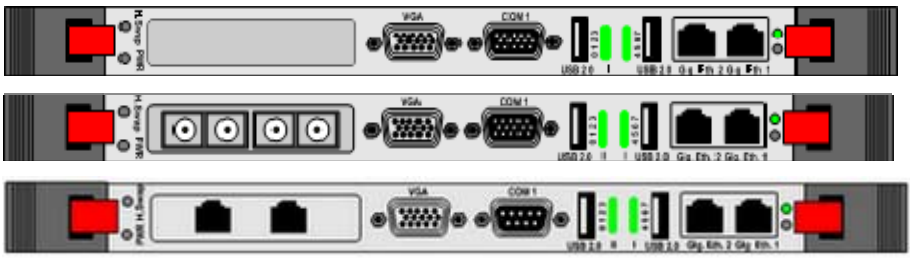
### Related Topics

- Analog Input Parameters
- Digital Input Parameters
- MPEG Encoding Parameters
- Targets
- MPEG Encoder Service Board Parameters
- Encoder I/O Board Parameters

## Host Controller

- The host controller service board is equipped with two Gig. Ethernet links, connecting 10/100/1000BT network segments for the output as well as to an Intel switch.
- An additional 1000SX network segment can be connected if the host controller is equipped with an SC-type connector in the PMC slot.

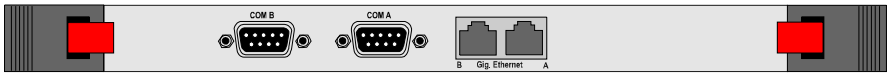
### Host Controller (front)



| Ports | Description |
|---|---|
| No PMC (Default)<br>Or<br>PMC Fiber: Left SC-Type<br>PMC Fiber : Right SC-Type | Not used, connects a 1000SX network for output |
| Or<br>PMC Copper: Upper Gig. Eth. Ch B<br>PMC Copper: Lower Gig. Eth. Ch A | Connects up to two 10/100BT or 1000BT networks for the output.<br>Connects up to two 10/100BT or 1000BT networks for the output. |
| VGA | Connects a monitor to the MGW x100 unit. Use this connector only if Optibase instructed you to do so. |
| COM1 | Connects the Configuration PC to the host controller for configuration using HyperTerminal. |

| | | |
|---|---|---|
| USB 2.0 | Not used. | |
| Gig. Eth. 1 and 2 | Connects up to two 10/100BT or 1000BT networks for the output | |
| **LEDs (left slot)** | **LED Status** | **Description** |
| PWR | Off<br>Green | Not active<br>Active |
| Hot Swap | Off<br>Blue | Board cannot be removed.<br>Board can be removed or was just inserted. |
| PMC: LNK | Off<br>Green | No connection<br>Network connected |
| PMC: ACT | Off<br>Flashes green | No activity<br>Transmitting/receiving data |
| I, II (0 – 7) | Off | Not used |
| SPEED | Off<br>Green | No connection<br>Network connected |
| ACT | Off<br>Flashes orange | No activity<br>Transmitting/receiving data |

## Host Controller I/O Board Interface (Rear)




| Ports | Description |
|---|---|
| Gig. Ethernet A | Connects the cross cable to the service board I/O. |
| Gig. Ethernet B | Connects a 10/100BT network segment for management via MGW EMS and basic configuration via Telnet. |
| COM A | Not used. |
| COM B | Not used. |

| LEDs | LED Status | Description |
|---|---|---|
| Hot Swap | Off | Not used |

**Note**

- Do not use any host controller other than MGCS-5500. Any other host controller may damage MGW x100 and renders your warranty void.
- The host controller and switch are not hot swappable.

## Live Encoder

- Install live encoders in slots 3-8.
- MPEG and H.264 encoders support two video channels and up to two audio channels per video channel.

| Service Board | Video | Required I/O Board |
|---|---|---|
| MGES-5200 | MPEG-1 and 2 | MGEI-5210A (analog sources) or MGEI-5210D (digital sources) |
| MGES-5610 | H.264 | MGEI-5210A (analog sources) or MGEI-5210D (digital sources) |

## Encoder Service Board Interface (Front)

| LEDs | LED Status | Description |
|---|---|---|
| Active CH1 (Encoder 1) | Off<br>Orange<br>Green<br>Red | No encoding<br>Encoder configured<br>Encoding<br>Encoder error |
| Active CH2 (Encoder 2) | Off<br>Orange<br>Green<br>Red | No encoding<br>Encoder configured<br>Encoding<br>Encoder error |
| Status | Off<br>Orange<br>Green<br>Red | Board offline<br>Board application is starting<br>Board online and ready to transmit<br>Board error |
| Hot Swap | Off<br>Blue | Board cannot be removed.<br>Board can be removed or was just inserted. |

## Encoder Analog I/O Board Interface (Rear)

| Connectors | Description |
|---|---|
| Composite A Y | Connects a Composite video source or an S-Video's Y (Luminance) component to Encoder 1. |
| S-Video A C | Connects an S-Video's C (Chroma) component to Encoder 1. |
| Audio A | Connects two audio sources to Encoder 1. You can connect balanced or unbalanced analog audio sources. |
| Composite B Y | Connects a Composite video source or an S-Video's Y (Luminance) component to Encoder 2. |
| S-Video B C | Connects an S-Video's C (Chroma) component to Encoder 2. |
| Audio B | Connects two audio sources to Encoder 2. You can connect balanced or unbalanced analog audio sources. |
| 10/100BT 1 and 2 | Connects the cross cable from service board port 2 to the service board I/O. |

| LEDs | LED Status | Description |
|---|---|---|
| Detect A and B | Off<br>Green | No source.<br>Video source detected. |
| Link 1 and 2 | Off | Not used. |
| Act 1 and 2 | Off | Not used. |
| Hot Swap | Off<br>Blue | Board cannot be removed.<br>Board can be removed or was just inserted. |

## Encoder Digital I/O Board Interface (Rear)

| Connectors | Description |
|---|---|
| SDI A | Connects an SDI compliant video source to Encoder 1. |
| Loop A | Ports the SDI compliant video source, connected to SDI A, to an additional MGEI-5210D board. |
| AES3 A | Connects two balanced AES3 (AES/EBU) compliant audio sources to Encoder 1. |
| SDI B | Connects an SDI compliant video source to Encoder 2. |
| Loop B | Ports the SDI compliant video source, connected to SDI B, to an additional MGEI-5210D board. |
| AES3 B | Connects two balanced AES3 (AES/EBU) compliant audio sources to Encoder 2. |
| 10/100BT 1 and 2 | Connects the cross cable from service board port 2 to the service board I/O. |

| LEDs | LED Status | Description |
|---|---|---|
| Detect A and B | Off<br>Green | No source.<br>Video source detected. |
| Link 1 and 2 | Off | Not used. |
| Act 1 and 2 | Off | Not used. |
| Hot Swap | Off<br>Blue | Board cannot be removed.<br>Board can be removed or was just inserted. |

**Note**

Make sure that digital input is enabled for the associated encoder service board.

## DVB Recaster and DVB Transrater

Install DVB Recaster Service boards from the front and I/O boards from the rear in slots 3-8.

- For board parameters, refer to the user manual.
- You can add and transmit several channels. The accumulated bit-rate depends on the board in use and the capabilities level you purchased.

| Service Board | Video | Required I/O Board |
|---|---|---|
| MGRS-5200 | MPEG-2 over DVB | MGRI-5200 |
| MGTR-5200 | MPEG-2 over DVB | MGRI-5200 |

## DVB Recaster/Transrater Service Board Interface (Front)

| LEDs | LED Status | Description |
|---|---|---|
| ASI In | Off<br>Green | Initialized.<br>DVB-ASI compliant source connected. |
| Demux | Off<br>Orange<br>Green<br>Red | No channel configured.<br>At least one channel ready.<br>At least one channel transmitting.<br>Initialization or channel error. |
| Status | Off<br>Green<br>Red | Not active.<br>DVB application active.<br>Initialization or board error. |
| Hot Swap | Off<br>Blue | Board cannot be removed.<br>Board can be removed or was just inserted. |

## DVB I/O Board Interface (Rear)

- You can connect a network to the connector labeled 10/100 BT 1 for transmitting content directly from the I/O board to the network.
- For board parameters, refer to the user manual.

| Connectors | Description | |
|---|---|---|
| ASI Monitor | Connects a DVB compliant decoding device to preview an incoming DVB-ASI compliant stream. | |
| ASI 1 In - ASI 2 In | Each interface can connect to one DVB-ASI compliant source. | |
| ASI 3 In - ASI 4 In | Each interface can connect to one DVB-ASI compliant source.<br>In previous versions of this board, ASI 3 In and ASI 4 In may not be supported. | |
| 10/100BT 1 | Connects a network segment for the output of direct streaming. | |
| 10/100BT 2 | Not used. | |
| **LEDs** | **Description** | |
| ASI 1 In - ASI 4 In | Off<br>Green | No Source or not used.<br>DVB-ASI compliant source detected. |
| Link 1 | Off<br>Orange | No connection<br>Connected |
| Act 1 | Off<br>Flashes Green | No transmission<br>Transmission |
| Link 2 | Off | Not used. |
| Act 2 | | Not used. |
| Hot Swap | Off<br>Blue | Board cannot be removed.<br>Board can be removed or was just inserted. |

## DVB Transcoder

A DVB transcoder consists of a DVB transcoder I/O board and an encoder service board. Service boards install from the front and I/O boards from the rear in slots 3-8.

- For board parameters, refer to the user manual.
- Each DVB transcoder supports two video channels and up to two audio channels per video channel.

| I/O Board | Video | Required Service Board |
|---|---|---|
| MGTI-5210X | MPEG-2 over DVB to MPEG-2 or H.264 over IP | MPEG-2: MGES-5200<br>H.264: MGES-5610 |

### Encoder Service Board (Front)

- For encoder service board interfaces, refer to Encoder Service Board Interface (Front) (on page 18).
- For encoder service board parameters, refer to the user manual.

## DVB Transcoder I/O Board Interface (Rear)

| Connectors | Description |
|---|---|
| ASI 1 In | Connects DVB-ASI compliant source. |
| ASI 2 In | Connects DVB-ASI compliant source. |
| Video A and B | Connects a monitor for preview. This monitor must have a Composite video input. |
| Audio A and B | Connects a monitor for preview. This monitor must have an Unbalanced audio input. |
| 10/100BT 1 and 2 | Connects the cross cable from service board port 2 to the service board I/O. |

| LEDs | Description | |
|---|---|---|
| ASI 1 In | Off<br>Green | No Source<br>DVB-ASI compliant source detected. |
| ASI 2 In | Off<br>Green | No Source<br>DVB-ASI compliant source detected. |
| Link 1 and 2 | Off | Not used. |
| Act 1 and 2 | Off | Not used. |
| Hot Swap | Off<br>Blue | Board cannot be removed.<br>Board can be removed or was just inserted. |

**Note**

DVB Transcoder I/O boards with a Loop connector instead of the second DVB-ASI input interface are available and referred to as MGTI-5210.

# Installing Hardware

An Optibase engineer may assemble and install your MGW x100 unit at your site. If MGW x100 has been sent to you or you wish to change MGW x100's location or its hardware configuration at a later stage, follow the instructions below.

## General Tasks

- Review all safety recommendations and guidelines.
- Verify the site's power voltage and make sure that MGW x100's power supplies comply with it.
- Verify the site's environmental specifications and make sure that they comply with the requirements stated in the system spec.
- Verify that you have the required cables and peripheral components available in the desired location.

## Required Tools

- Number 2 Phillips screwdriver
- 5×100 Phillips screwdriver
- Tape measure
- Level (optional)

## Rack-Mounting MGW x100

### To mount MGW x100 into a rack:

1. Make sure that your rack has a rail with mounting holes on the inside of the rack.

   Make sure that MGW x100's rear will be easily accessible for installing and removing components such as boards, fans and cables.

2. Measure the distance between the screw holes and insert the screw brackets into the mounting holes accordingly.

3. With the help of at least three people, place the MGW x100 chassis into the desired position. Ensure that the mounting holes in the rack match the corresponding holes in the chassis.

4. Make sure that at least two people hold the chassis while a third person bolts the chassis to the rack. Bolt the bottom holes first and then work up from there.

### To remove MGW x100 from a rack:

1. Make sure to switch off MGW x100 and disconnect all cables.
2. Make sure that two people are holding the unit and then use a Number 2 Phillips screwdriver to loosen the screws that hold MGW x100 in the rack.
3. With the assistance of two people, carefully remove the unit from the rack.

**Note**

- To stabilize the rack and prevent it from falling, we recommend mounting MGW x100 and other heavy equipment into the lower half of your rack.
- Make sure that MGW x100 is switched off and all cables are disconnected when rack-mounting or removing MGW x100 from a rack.
- Never attempt to lift or move MGW x100 by yourself. Make sure that at least three people lift the chassis.

## Installing Service and I/O Boards

MGW 1100 ships with pre-installed fans and power supplies. Associated service and I/O boards ship separately and must be installed before you can connect external components and configure MGW 1100.

Certain boards require certain slots as listed below. Slot labels can be found to the right of each slot. If not otherwise noted, every service unit consists of a service board and an I/O board installed in a specific slot from the front and the rear respectively.

| Boards | Slots |
|---|---|
| Host controller | Control |
| Switch | Switch |
| MPEG Encoder,<br>H.264 Encoder,<br>DVB Recaster,<br>DVB Transrater,<br>DVB Transcoder | 3 - 8 |

**Table 6: Slot Assignments**

### To install boards for the first time:

Install the desired boards for first use while MGW 1100 is switched off. Associated service and I/O boards must be installed into matching slots from the front and the rear respectively.

1. Use a 5100′ Phillips screwdriver to loosen the screws on the right and the left of the relevant slot cover on MGW 1100’s front panel. Loosen the

screws only until you feel a click. If you unscrew any further, you will not be able to open the injector/ejector handles.

2. Push the red buttons on the ejector/injector handles at the same time and open them; the respective slot cover unplugs.

3. Remove the slot cover and insert the desired service board into the chosen slot.

4. Plug the service board into the bus connector and close the ejector/injector handles; you hear a click and the Hot Swap LED turns blue when the board has been properly inserted. The board must line up with the chassis surface.

5. Use the 5 100 ′ Phillips screwdriver to tighten the screws on the right and the left side of the I/O board.

6. Locate the corresponding I/O slots on the rear panel and follow steps 1 – 5 to install the I/O board.

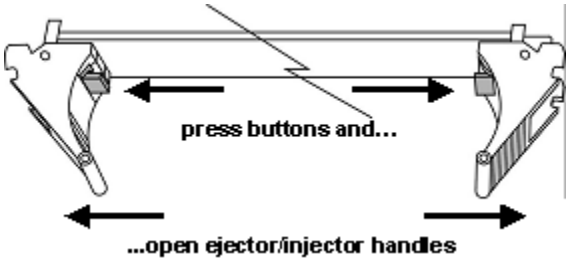



**Figure 4 .Opening the Ejector/Injector Handle**

**Note**

Make sure to cover all empty slots with slot covers.

## To install boards while operating MGW 1100:

All boards except the host controller and the switch can be removed and installed while MGW 1100 is operating.

1. Use a 5100′ Phillips screwdriver to loosen the screws on the right and the left of the relevant slot cover on MGW 1100's front panel. Loosen the screws only until you feel a click. If you unscrew any further, you will not be able to open the injector/ejector handles.

2. Push the red buttons on the ejector/injector handles at the same time and open them; the respective slot cover unplugs.

3. Remove the slot cover and insert the desired service board into the chosen slot.

4. Remove the slot cover and insert the desired service board into the chosen slot.

5. Plug it into the bus connector and close the ejector/injector handles; you hear a click and the Hot Swap LED turns blue when the board has been properly inserted. The board must line up with the chassis surface.

6. Use the 5 100 ′ Phillips screwdriver to tighten the screws on the right and the left side of the I/O board.

7. Wait until the Hot Swap LED turns off before using this board.

**Note**

- The host controller and the switch are not hot swappable.
- When you replace the DVB Transcoder I/O board, the associated encoder service board resets after the new board has been installed.
- Make sure to cover all empty slots with slot covers.

## To remove boards:

All boards except the host controller and the switch can be removed and installed while MGW 1100 is operating.

1. If you remove a hot swappable board and MGW 1100 is running, slightly push the red button of the right ejector/injector handle down. When the Hot Swap LED turns blue, the board is ready to be removed.

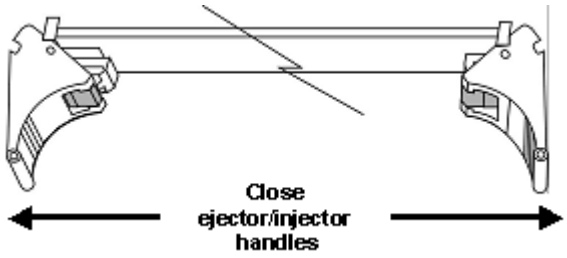
2. Use the 5100′ Phillips screwdriver to loosen the screws on the right and the left side of the relevant slot cover on MGW 1100's front panel. Loosen the screws only until you feel a click. If you unscrew any further, you will not be able to open the injector/ejector handles.

3. Push the red buttons on the ejector/injector handles at the same time and open the ejector/injector handles; the board unplugs.

4. Remove the relevant board.

5. Cover the open slot with a slot cover and close the ejector/injector handles; you hear a click when the slot cover has been properly inserted.

6. Tighten the screws on the right and the left side.



**Note**

- The host controller and the switch are not hot swappable.
- When you replace the DVB Transcoder I/O board, the associated encoder service board resets after the new board has been installed.
- Make sure to cover all empty slots with slot covers.

# Connecting MGW x100

You have to connect certain components to one another and to networks. To do so, follow the instructions below.

## Connecting MGW 1100 to the Power Supply

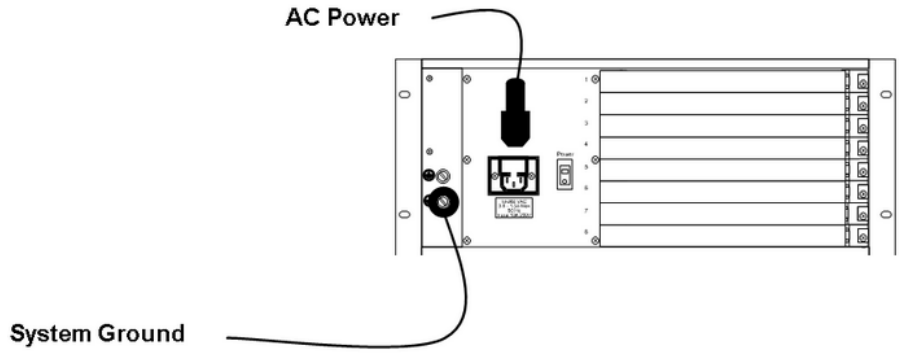
- **AC Platform.** Use a UL listed power cord and connect it to the power connector on MGW 1100's rear panel. MGW 1100 does not ship with a power cord. You will have to purchase a power cord that fits your local Din socket.

- **Dual DC Platform**. Use AWG12 copper conductors and connect Plus, Minus and Ground to the connectors labeled +, - and GND respectively on MGW 1100's rear panel.

  If you connect both DC inputs to separate DC sources, the second DC source takes over if the first one fails.

- **System Ground.** Use an AWG12 copper conductor and attach it to one of the System Ground studs on the bottom of MGW 1100's rear panel.

  The System Ground studs are labeled with ⏚.

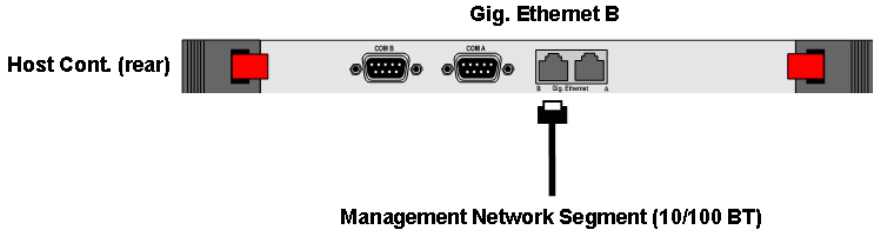



## Connecting Host Controllers with Switches

- The host controller connects to the switch internally.

## Connecting to a Network for Management

Connect a 10/100 BT network segment to the NIC labeled **Gi. Ethernet B** located on the host controller I/O board (rear)**.**

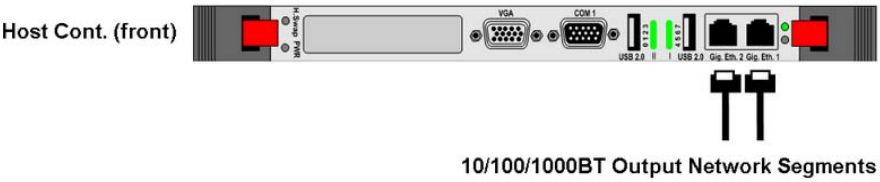



## Connecting to Networks and Devices for the Output

By default, MGW 1100 and MGW 1000 comes with two Giga Ethernet links. An additional SC-type/Copper modules are optional. Straming is also possible through the rear I/O boards - DVB recasters and DVB transraters.

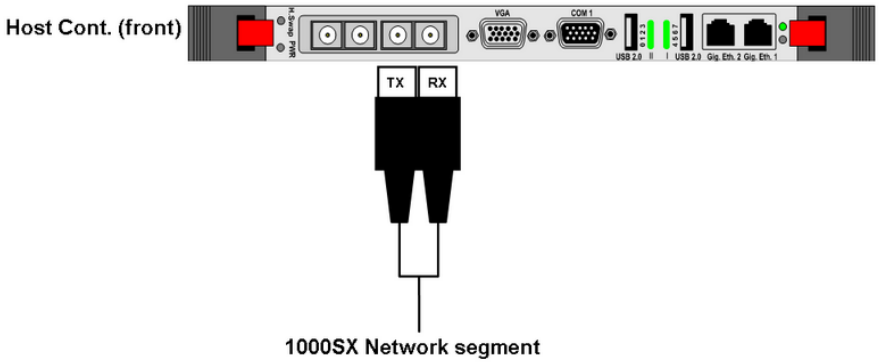
### To connect 10/100/1000BT network segments:

- Connect up to two 10/100BT network segment used for the output to the Giga Ethernet links labeled Gig. Eth. 1 and 2 respectively.



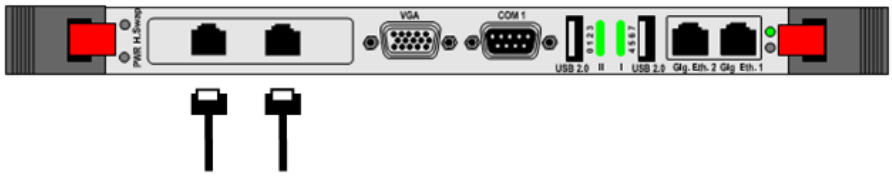

### To connect a 1000SX network segment:

- Use an optic cable and connect one end to the SC-type connector to the right in the PMC slot and the other end to an IEEE 802.3z compliant gigabit switch.
- Make sure to connect Rx to Tx and Tx to Rx; otherwise MGW 1100 and MGW 1000 cannot connect to the network.




## To connect a 10/100/1000 BT Copper network segment:

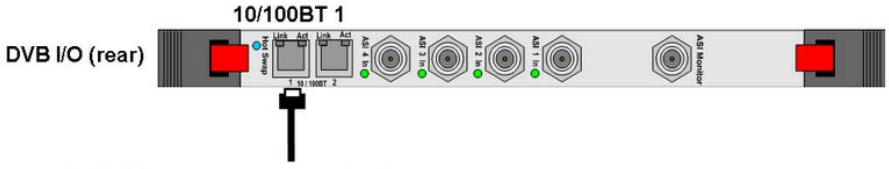
- Connect up to four 10/100/1000BT network segment used for the output to the Giga Ethernet links labeled Gig. Eth. 1 and 2 or PMC Ch A and B.



10/100/1000BT Output Network Segments

## To connect a network segment to a DVB I/O board:

- Connect a 10/100BT network segment to the NIC labeled 10/100 BT 1 located on the DVB I/O board (rear).




10/100 BT Network segment for direct streaming

## Connecting Video and Audio

- **Encoding**. Video and audio sources connect to the Encoder I/O board MGEI-5210A or MGEI-5210D at the rear. MGEI-5210A connects to analog sources and MGEI-5210D connects to digital sources.

- **DVB Recasting and DVB Transrating**. DVB-ASI compliant sources connect to the DVB I/O board MGRI-5200 at the rear.

- **DVB Transcoding**. Up to two DVB-ASI compliant sources and monitors connect to the DVB I/O board MGTI-5210X at the rear.

### To connect video sources to encoders:

- **Composite Video**. Use a video cable with a BNC connector to connect the source to the BNC connector labeled Composite A.

  If required, connect the second Composite source to the BNC connector labeled Composite B.

- **S-Video.** Use the 2´BNC to MiniDIN video cable (WCA3132) and connect the BNC connector labeled Y to the BNC connector labeled Composite A Y and the BNC connector labeled C to the connector labeled S-Video A C.

  If required, connect the second S-Video source to the BNC connectors labeled Composite B Y and S-Video B C respectively.

- **SDI.** Use a video cable with a BNC connector to connect the source to the BNC connector labeled SDI A.

  If required, connect the second SDI source to the BNC connector labeled SDI B.

### To connect an SDI source to additional encoders:

- Use a BNC cable and connect one end to the connector labeled Loop A or Loop B respectively and the other end to connector SDI A or SDI B on an additional MGEI5210D Encoder Digital I/O board.

  You can connect an SDI source to up to six MGEI-5210D Encoder Digital I/O boards.

**Note**

- SDI is available for encoders, if digital input is enabled for the associated encoder service board (MGES-5200).
- Cables must be purchased separately.

## To connect audio sources to encoders:

- **Balanced/Unbalanced**: Use the desired MGI Analog Audio cable to connect analog audio sources as follows:
- Use the MGI Analog Audio Cable with XLR connectors (WCA5197) for balanced sources or the MGI Analog Audio Cable with RCA connectors (WCA5196) for unbalanced sources respectively.
- Connect the DB-15 connector to the relevant audio connector (**Audio A** or **Audio B** for Encoder 1 or 2 respectively).
- Connect the connectors labeled **Audio Right Ch. 1** and **Audio Left Ch. 1** to the desired audio source. Depending on the cable you use, these connectors are either XLR female or RCA.
- If you use a second audio source, connect the connectors labeled **Audio Right Ch. 2** and **Audio Left Ch. 2** to that source.

**Figure 5 .MGI Analog Audio Cable with XLR Connectors (WCA5197(**

**Figure 6 .MGI Analog Audio Cable with RCA Connectors (WCA5196(**

- **AES3 (AES/EBU)**: Use the MGI Analog Audio cable with XLR connectors (WCA5197) to connect balanced AES3 audio sources to the relevant audio connector AES3 A or AES3 B as explained above.

**Note**

- The additional BNC connector labeled LTC is not used at present.
- Embedded audio is part of the SDI input and does not require connecting an audio source.
- AES/EBU is available for encoders, if digital input is enabled for the relevant encoder service board (MGES-5200).
- Cables must be purchased separately.

### To connect sources to DVB Recasters and DVB Transraters:

- Use BNC cables to connect DVB-ASI compliant sources to the ASI In connectors. Connect the first source to the BNC connector labeled ASI 1 In, the second source to ASI 2 In and so on.

### To connect sources to DVB Transcoders:

- Use BNC cables to connect up to two DVB-ASI compliant sources to the BNC connectors labeled ASI 1 In and ASI 2 In respectively.

### To connect monitors for preview to DVB Transcoders:

- **Video**. Use a BNC cable to connect monitors with Composite input to the BNC connectors labeled Video A and/or Video B.
  When re-encoding content using Transcoder 1, connect to Video A.
  When re-encoding content using Transcoder 2, connect to Video B.

- **Audio**. Use the MGI Decoder cable (WCA5199) to connect an unbalanced audio monitor as follows:

  - Connect the DB-15 connector to the relevant audio connector (**Audio A** for **Transcoder 1** and/or **Audio B** for **Transcoder 2** respectively).
  - Connect the XLR male connectors **Audio Right Ch. 1** and **Audio Left Ch. 1** to the desired monitor.
  - If you use a second audio monitor to preview re-encoded audio content, connect the XLR male connectors **Audio Right Ch. 2** and **Audio Left Ch. 2** to that monitor.

**Figure 7 .MGI Analog Audio Cable with XLR Connectors (WCA5197(**

**Note**

- The interfaces ASI 3 In and ASI 4 In are not used in the Standard version of previous versions.
- DVB Transcoder I/O boards with a Loop connector instead of a second DVB-ASI input interface are still available and referred to as MGTI-5210. The Loop connector allows connecting the DVB input to additional DVB Transcoder I/O boards.
- If you assign a hot stand-by channel to a DVB Transcoder and you are still using the MGTI-5210, connect the relevant source separately to the relevant DVB Transcoder I/O board's ASI In connector. Do not connect it via the primary channel's DVB Transcoder I/O board's Loop connector.
- Cables must be purchased separately.

## To connect IP sources to Transcoders

- Use RJ-45 network cable to connect IP source to port 25 in Switch A or B depending on your redundancy configuration.

# Configuring MGW x100

MGW x100's switches and host controller units are pre-configured. To avoid IP address conflicts you must change the IP addresses of all NICs (Network Interface Card). After you have installed and connected the relevant components, you have to configure basic network parameters by using MGW x100's command line interface.

## Accessing MGW x100's Command Line Interface

**When to use Hyper Terminal**

Use Hyper Terminal in the following scenarios:

- MGW x100 is used for the first time.
- IP address of the network interface **Gig. Ethernet Rear B** is unknown.

Use Hyper Terminal to access MGW x100's command line interface and set the network parameters for the network interface labeled **Gig. Ethernet Rear B** on Controller A's I/O board (rear). This network interface connects the network segment used for managing MGW x100.

**When to use Telnet**

- Use Telnet when the IP address of the network interface **Gig. Ethernet Rear B** is known.

---

**Note**

MGW x100 EMS application can be also used for the configuration of the network interfaces.

---

## Using HyperTerminal

Before using MGW x100 for the first time, you have to assign an IP address and a network mask to the Management Network interface **Gig. Ethernet Rear B** on Controller A and change the host controller (system) name.

If you wish to manage the MGW from a different network then you must configure the default gateway

Each network interface has an Interface ID assigned that is required for setting network parameters. The Interface ID for **Gig. Ethernet Rear B** is **4**.

**Preliminary steps**

1. Verify that MGW x100 is switched on and the Management network segment is connected to the network interface labeled **Gig. Ethernet Rear B** on Controller A's I/O board (rear).

2. Verify that at least one COM port is available on the relevant PC.

3. Use the supplied a DB-9 cable (Null Modem cable) and connect one end to MGW x100's serial port labeled **COM1** on Controller A (front) and the other end to the relevant COM port on your PC.

4. Switch MGW x100 on. It will take few minutes until MGW x100 completes booting.

---

**Note**

Although you can connect to MGW x100 while MGW x100 is booting, you cannot issue commands.

---

## To access MGW x100 via HyperTerminal:

1. Open Hyper Terminal; the **Connection Description** window appears.

   If you are using a previously saved connection (*.ht file), continue with step 6.

If you are creating a new connection, proceed to the next step.

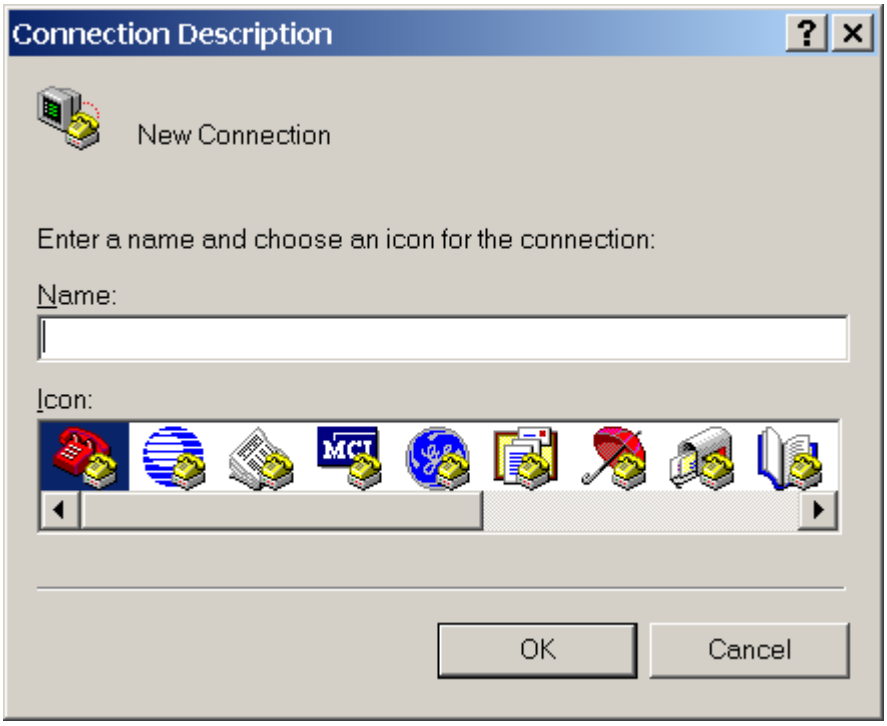



**Figure 8 .Hyper Terminal Connection Description window**

2. In the **Name** field type the desired name (e.g. **MGWx100**) and click **OK**; the **Connect To** window appears.

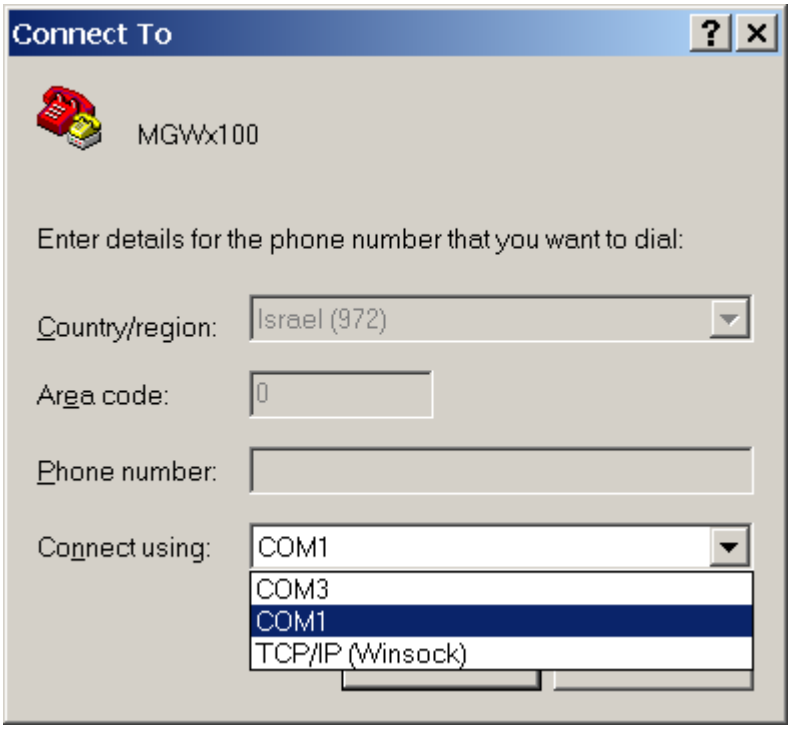



**Figure 9 .HYper Terminal>Connect To window**

3. In the **Connect To** window, click the **Connect Using** drop-down list, select the appropriate **COM port** and click **OK.**

   The **COM<x> Properties** window appears.

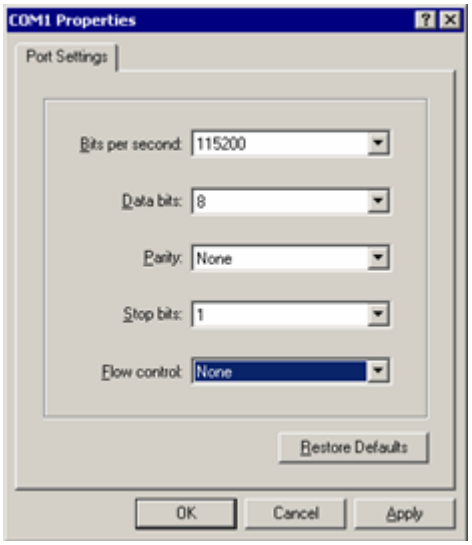



**Figure 10 .HyperTerminal's COM Properties window**

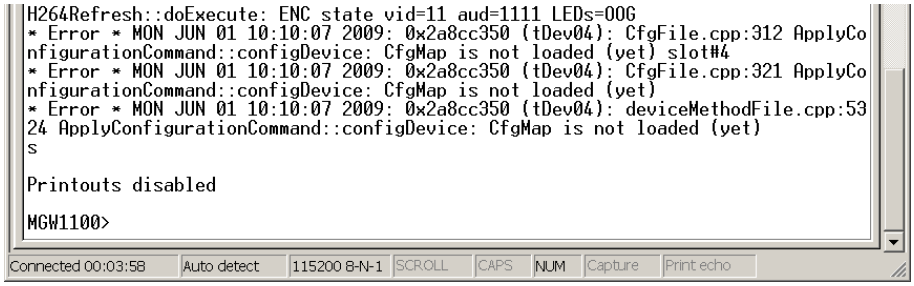
4. Type the parameters into their respective fields as shown in the figure above and click **OK.**

5. Press **ENTER** and wait until the Hyper terminal command prompt appears (**MGWx100>**).

   User mode is enabled.

   - **User mode** - enables you to use basic commands. This mode is not suffic configuration.
   - **Tech mode** - enables you to use more advanced technical commands. This MGWx100 configuration.

- Messages (including error messages) may appear on your screen. To prevent the display of these messa keyboard and press ENTER. the Printouts Disabled message appears on the screen. To enable the dis trouble-shooting purposes) press s again and then ENTER.


H264Refresh::doExecute: ENC state vid=11 aud=1111 LEDs=OOG
* Error * MON JUN 01 10:10:07 2009: 0x2a8cc350 (tDev04): CfgFile.cpp:312 ApplyCo
nfigurationCommand::configDevice: CfgMap is not loaded (yet) slot#4
* Error * MON JUN 01 10:10:07 2009: 0x2a8cc350 (tDev04): CfgFile.cpp:321 ApplyCo
nfigurationCommand::configDevice: CfgMap is not loaded (yet)
* Error * MON JUN 01 10:10:07 2009: 0x2a8cc350 (tDev04): deviceMethodFile.cpp:53
24 ApplyConfigurationCommand::configDevice: CfgMap is not loaded (yet)
s
Printouts disabled
MGW1100>
Connected 00:03:58
Auto detect
115200 8-N-1
SCROLL
CAPS
NUM
Capture
Print echo

6. At the **MGWx100** prompt type **tech** (lower case).

7. Type **mgw5100** for the user name. Press **ENTER**.

8. Type **optibase** for the password. Press **ENTER**.

   The following message is displayed: "**technician**" and the prompt changes to **DEBUG>.**

---

**Note**

Commands entered at the Hyper Terminal prompt are case sensitive. Follow the instructions exactly as described.

---

9. Type **ipConfig**. The NICs identity parameters (such as Alias, IP address and status) are displayed.

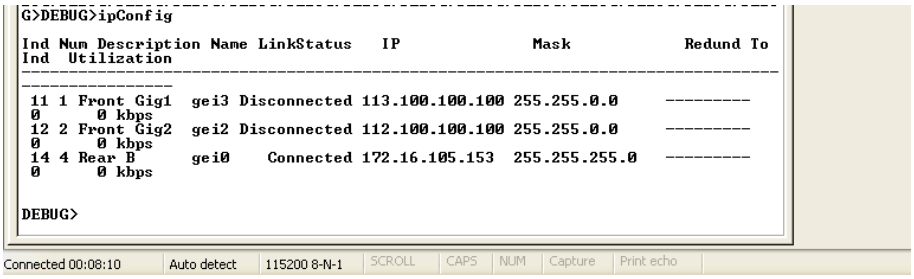



**Figure 11 .Hyper Terminal ipConfig window**

As shown in the above figure Gig, Ethernet Rear B is the card used for managing the unit.

### To configure NICs to work on your network:

**Note**

The MGW x100 platform requires two network connections; one for Management and one for IP video stream inputs. The NICs on the front are used for streaming. You may change their IP address by using the ipConfig command or the MGW EMS application.

1. Type **ipConfig <interface> <ip address> <subnet mask>.**

**Note**

- If required consult your network administrator to obtain these parameters.
- To avoid IP address conflicts change the IP addresses of all NICs.

2. Press **ENTER** twice. The new IP address and network mask are set.

   For example: **ipConfig 4 172.16.100.253 255.255.0.0**

3. Verify that the IP address and the subnet mask have been properly assigned by using the **ipConfig** command and checking the parameters**.**

**Note**

- The MGW x100 platform requires two network connections; one for Management and one for IP video stream inputs. Each must belong to a different subnet. The NICs on the front are used for streaming. You may change their IP address by using the ipConfig command or the MGW EMS application.
- It is recommended you make a note of network parameters that have been set. For your convenience, you can use the table in My Network Settings (on page 48).
- If you wish to configure network interfaces for Controller B using HyperTerminal, connect the Configuration PC to Controller B's serial interface labeled COM1 at the front and follow the instructions above.

### To set the community string:

- In the command line, type
  c**ommunity** <**my_string**> and press **ENTER**; the desired parameter is set.
  For example: **community optibasemgw.**

### To set or change the MGW SNMP Mib identifier:

- In the command line, type
  **setMib2 <Name> <Location> <Contact>** and press **ENTER**; the desired parameters are set.

  For example: **setMib2 System_A_Server_room_John_Doe**

### To set a default gateway:

- In the command line, type
  **defaultGateway <default gateway IP**> and press **ENTER**;
  the default gateway is set.

---

**Note**

The default gateway applies only to the management network.

---

For example: **defaultGateway 172.16.195.256**

### To set the time and date:

- In the command line, type
  **setTime <hour> <minute> <day> <month> <year**> and press **ENTER**;
  the new date and time are set.

  To set MGW x100 to 15.20h on April 3, 2009:
  **setTime 15 20 03 04 2004**

### To view the time and date:

- In the command line, type **showTime** and press **ENTER**; the time and date are displayed**.**

---

**Note**

Viewing the time and date can be also performed using the MGW EMS application.

---

### To view and issue additional commands:

1. To enter the menu, type **help**; the menu appears.
2. To view available commands for your selection, type **help <your selection**>, for example **help TCP/IP**; the relevant commands appear with a short explanation.
3. To view the required syntax for the desired command, type **help <the desired command**>, for example **help ipConfig**; the required syntax appears with an example.
4. To issue the desired command, type the command with the required syntax and press **ENTER**; the command is executed.

---

**Note**

- We recommend configuring Controller B's interfaces using MGW EMS, although you may use HyperTerminal after connecting the Configuration PC to Controller B's serial port (COM1).
- If you have Controller B and Switch B installed as a backup (hot standby), make sure to

assign the network interface for the management on Controller B to the same subnet as Host A, otherwise MGW EMS will be unable to switch over to Controller B in case Controller A and/or switch A fail.

### To terminate Hyper Terminal connection:

Close the HyperTerminal's window to terminate the connection.

## Using Telnet

Before using MGW x100 for the first time, you have to assign an IP address and a network mask to the Management Network interface **Gig. Ethernet Rear B** on Controller A and change the host controller (system) name.

If you want MGW x100 to be accessible from outside your local network, you have to assign a default gateway as well.

Each network interface has an Interface ID assigned that is required for setting network parameters. The Interface ID for **Gig. Ethernet Rear B** is **4**.

### Preliminary steps

1. To access MGW x100 via Telnet, use the network segment connected to Gig. Ethernet Rear B on the Host Controller I/O board (rear). Refer to your notes for the relevant IP address. **Gig. Ethernet Rear B** is located on Controller A's I/O board (rear).

**Note**

If you have a second host controller unit installed in the slot labeled Control B as a backup (hot standby), connect the management network segment to its 10/100/1000BT 1 connector as well.

### To access MGW x100 via Telnet:

1. Double-click the Telnet icon on the Desktop; The Telnet program opens. If you don't have a shortcut to Telnet on the Desktop and you don't see Telnet in the Program menu, perform the following steps:

   a. From the Windows **Start** menu select **Run** and in the Run window type "**cmd**" and press **ENTER.**

   b. At the Command prompt type **telnet <IP address>** and press **ENTER**.

2. At the Telnet prompt, type **telnet <unit's IP address>**; the **MGW Login** command prompt appears.

3. Type the following commands (lower case):

   - **MGW Login: mgwtelnet.** Press **ENTER.**
   - **Password: security.** Press **ENTER.**

   The **MGWx100>** prompt appears. User mode is enabled.

**Note**

User mode enables you to use basic commands and is not sufficient for MGWx100 configuration. Tech mode enables you to use more advanced technical commands and is sufficient for MGWx100 configuration

4. If required, change the User mode to Tech mode by typing the following commands (lower case) a the **MGWx100** prompt:

   - **tech** (lower case). Press **ENTER.**
   - **mgw5100** for the user name. Press **ENTER.**
   - **optibase** for the password. Press **ENTER.**

   The following message is displayed: " **technician**" and the prompt changes to **DEBUG>.**

5. Follow the steps in Using HyperTerminal (on page 39) for configuring the MGWx100 unit.

**Note**

- If accessing MGW x100 for the first time or no IP address is available, connect a PC to MGW x100's COM1 port and use HyperTerminal to access MGW x100's command line interface. Refer to Using HyperTerminal (on page 39) for details.
- Host controller units installed in the slot labeled Control B function as a backup if a second switch is installed in the slot labeled Switch B.
- You cannot configure Controller B's interfaces using Telnet as long as Controller A is active. To configure Controller B's interfaces via the network, use MGW EMS.
- You cannot connect via Telnet while MGW x100 is booting.
- It is recommended that you make a note of network parameters that have been set. For your convenience, you can use the table in My Network Settings (on page 48).

## To terminate the Telnet connection:

1. In the command line, type **exit** or **logout** and press **ENTER**; the connection is terminated.

**Note**

- If Controller A and/or Switch A fails and MGW x100 switches over to Controller B/Switch B, you have to use the IP address assigned to Gig. Ethernet Rear B on Controller B to log on (again).
- Passwords and commands are case sensitive.
- You may have to resize the Telnet window in order to see all parameters displayed.
- Once configured, you can use the Interface table on the MGW EMS Platform page to reconfigure IP addresses and network masks.

## Setting Network Parameters

Configuring MGW x100 for first use requires connecting a PC to Controller A's COM1 port (front) and the use of HyperTerminal to access MGW x100. If reconfiguring MGW x100's host controller name, use Telnet to access MGW x100. To reconfigure TCP/IP settings, use the Platform page in MGW EMS or the command line interface accessible via Telnet.

## Network Interfaces and Default Settings

The table below lists available network interfaces and default settings. These default settings apply to the interfaces of Controller A and B (when applicable).

| Name | Interface ID | Alias | IP Address | Subnet Mask |
|---|---|---|---|---|
| Front Gig1 | 1 | gei5 | 115.100.100.100 | 255.255.0.0 |
| Front Gig2 | 2 | gei4 | 114.100.100.100 | 255.255.0.0 |
| Rear A | 3 | gei3 | 113.100.100.100 | 255.255.0.0 |
| * Available only in MGSS5000 configuration | | | | |
| Rear B | 4 | gei2 | 112.100.100.100 | 255.255.0.0 |
| PMC Ch A (front) | 5 | gei0 | 110.100.100.100 | 255.255.0.0 |
| PMC Ch B (front) | 6 | gei1 | 111.100.100.100 | 255.255.0.0 |
| * Available only in MGSS5500 configuration | | | | |

**Table 7: Default settings for MGW x100's Network Interfaces**

## My Network Settings

Use the table below to make a note of your current network settings.

| Name | Interface ID | Alias | IP Address | Subnet Mask |
|---|---|---|---|---|
| Front Gig1 | 1 | gei5 | | |
| Front Gig2 | 2 | gei4 | | |
| Rear A | 3 | gei3 | | |
| Rear B | 4 | gei2 | | |
| PMC Ch A (front) | 5 | gei0 | | |
| PMC Ch B (front) | 6 | gei1 | | |

**Table 8: My settings for MGW x100's Network Interfaces**

**Note**

To configure and manage MGW x100 via Telnet or MGW EMS, use the IP address assigned to the NIC labeled Gig. Ethernet B on Controller A's I/O board (rear). Controller A is installed in slot 7, which is labeled Control A (applicable only to MGWx100).

## Enabling/Disabling Backup Channels

MGW x100 lets you add hot stand-by (backup) channels, which will take over automatically if the primary channel fails.

If you do not want hot stand-by channels to take over, you can use the command line interface to disable the relevant codes.

### To disable codes:

1. Use Telnet or HyperTerminal to access the command line interface as explained on the previous pages.

2. At the command prompt, type **excludeChFcodes 2010 2014** and press **Enter**; the relevant codes are disabled and hot stand-by channels will not take over when sources become unstable.

3. To preserve this setting, type **save excludeChFcodes 2010 2014** and press **Enter**; the codes remain disabled after restarting MGW x100.

### To restore disabled codes:

1. At the command prompt, type **excludeChFcodes 999999** and press **Enter**; the relevant codes are restored.

2. To preserve this setting, type **save excludeChFcodes 999999** and press **Enter**; the relevant codes remain active after restarting MGW x100.

# Installing Software

You operate MGW x100 from a PC on your network. This PC will be referred to as Management PC.

To operate MGW x100, you need to install the MGW EMS. Before installing the MGW EMS, you must configure your PC for the network. If you replace the Management PC, make sure that the new PC's network settings match the previous PC's settings. If you choose different settings, the new Management PC may not be able to communicate with MGW x100.

## System Requirements

Pentium-III PC 500 MHz or higher with a 10/100BT network interface card (NIC).

- The MGW EMS currently supports the following operating systems:
  - Windows 2000 Professional with Service Pack 4
  - Windows XP Professional with Service Pack 1 or higher
- 128 MB RAM or more, depending on the number of MGW x100 units you manage from the relevant PC.
- 200 MB free disk space or more.
- CD-ROM drive (16× or faster).

## Configuring the Management PC for the Network

Go to **My Network Places** and then to **Local Area Connection**.

- Refer to the relevant Microsoft Windows documentation for further instructions.

## Installing MGW EMS

MGW EMS installs together with the current version of Java Runtime. To install MGW EMS, follow the instructions below.

1. If you are about to upgrade an existing system, use the previously installed version of MGW EMS to upgrade the system software before installing a new version of MGW x100.
2. Close all programs and use the Add/Remove Programs wizard to uninstall any earlier version of MGW EMS that you may have installed on your PC.
3. Insert the MGW x100 CD into your PC's CD ROM drive.

4. On the MGW x100 CD, navigate to the MGW EMS folder; installation files appear.

5. Double-click **MGW_EMS_Setup.exe** and follow the on-screen instructions.

   - You will be asked whether you wish to edit the default IP address **127.0.0.1 specified for MGW EMS**. We recommend setting it to the IP address associated with the MGW unit used most often.
   - You will also be able to define up to eight additional IP addresses for frequently used units from which you can choose one when logging on.
   - If you are asked whether you want MGW EMS to overwrite an already installed version of the Java Virtual Engine, choose **Yes**. If you choose **No**, the installation may fail.

6. MGW EMS is installed and a shortcut is added to your Desktop.

7. When you open MGW EMS, the Logon window appears with the default IP address **127.0.0.1** or with the IP address that you defined, for example **172.16.100.253**.

8. If you click the arrow to the right; a list appears with the additional IP address you defined.

### To edit the default IP address at a later stage:

1. Close MGW EMS.

2. Browse the MGW EMS folders for **EMSConfig.ini** and create a backup. Save the backup in a different folder on your PC.

3. Browse the MGW EMS>cfg folder and open the **EMSConfig.ini**; the first line has the following syntax:
   **emsx100.snmp.deviceIP <IP address>**.

4. Modify the registered IP address to the desired IP address.

5. Save and close **EMSConfig.ini; MGW EMS displays the new IP address once the Logon window appears.**

### To edit the list of available IP addresses at a later stage:

1. If relevant, close MGW EMS.

2. Browse the MGW EMS\cfg folder. Open the **devicesList.ini** and create a backup of the **devicesList.ini** file. Save the backup in a different folder on your PC.

3. Open **devicesList.ini**; the IP addresses you defined appear listed.

4. Modify the listed IP addresses as desired and verify that your updated list includes the default IP address.

**Note**

- If the available disk space is insufficient, installing MGW EMS will fail.
- If you want to uninstall MGW EMS after you edited EMSConfig.ini and/or devicesList.ini, you will have to manually delete the MGW EMS program folder.
- You can list up to eight IP addresses in devicesList.ini.

## MGW EMS - Managing Software Versions

System software versions will be made available for upgrading MGW x100 using MGW EMS. The respective software versions will be available as zip files for download from Optibase's FTP site or distributed on a CD. Instructions and required passwords are provided with upgrade release notes as relevant.

Depending on available disk space, MGW EMS allows you to upload and store up to three software versions that you can activate when desired. You can view the Version Definition files (VDF files) of uploaded and activated software versions in the Version Management window under **Available Versions**. The currently active version's VDF file appears under **Current Version**. The Version Management window also displays used and available disk space on the host controller's disk where uploaded software versions are stored.

### To view a list and details of current software versions:

1. Start MGW EMS and log on to MGW x100 as explained in the user manual.

2. On the toolbar, click **SW Version**

, the Version Manager window appears displaying the VDF files of currently uploaded and active software versions. MGW x100's disk can host up to two additional software versions besides the default version **DEFVER.VDF** that cannot be deleted.

3. Select the desired software version from the list and click Properties

a window appears displaying the selected version's details.

4. To update the Software Version list, click **Refresh**

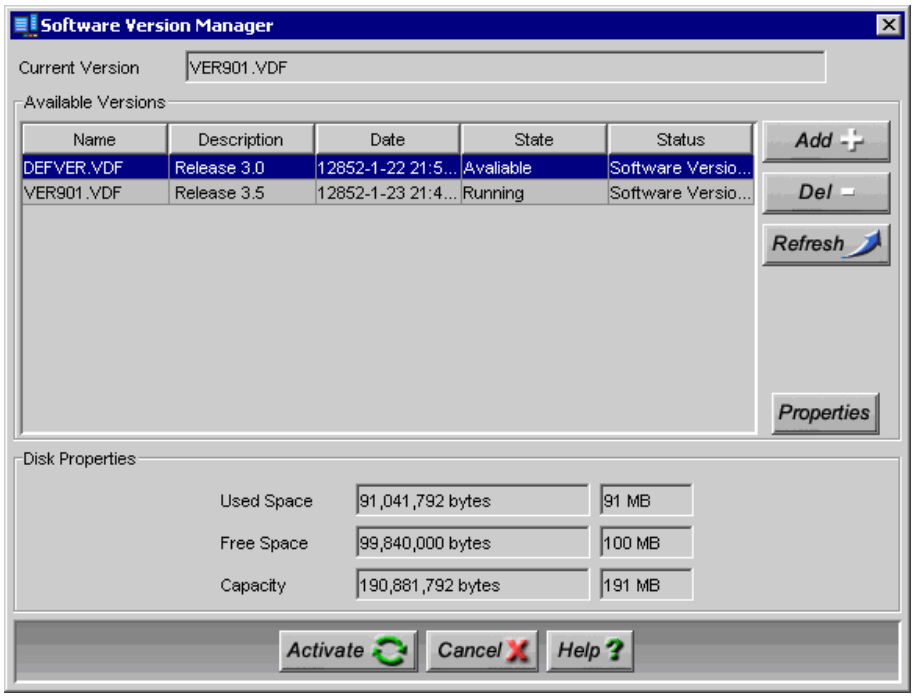




**Figure 12 .Software Version Management**

## To upload a new software version:

1. If not already done, start MGW EMS and log on to MGW x100 as explained in the user manual.

2. In the Version Manager window, click **Add**


3. the File Dialog window appears, displaying zip files and the associated Version Definition files (*.vdf).

4. If relevant, navigate to the desired software version's location

5. Select the desired zip file and click **Add SW Version**; the selected software version uploads with the associated VDF file, which may take several minutes.

---

**Note**

- If you wish to upgrade or downgrade across several software versions, you have to upgrade/downgrade stepwise. For example, to upgrade version 3.5 to version 4.5, you have to first upgrade to version 4.0.2 before you can upgrade to version 4.5.
- Redundant host controllers must have the same default software version activated.
- We recommend stopping all channels before activating a software version.

---

- To free disk space, we recommend deleting rarely used software versions and keeping them available on a PC or server on the network.

## To activate a software version:

1. If not already done, start MGW EMS and log on to MGW x100 as explained in the user manual.

2. Make a note of channels associated with boards affected by activating the desired software version. Boards associated with certain channels are listed below.

   - **Live encoders.** Encoding and transcoding channels will be removed.
   - **DVB transcoders.** Transcoding channels will be removed.
   - **DVB recasters.** DVB recaster channels will be removed.
   - **DVB transraters.** DVB transrater channels will be removed.
   - **Switch and/or host controller.** All channels are removed and the system resets.

3. Select the desired software version from the list and click **Activate**

. the affected boards or the entire unit reset. If the software version affects the switch, it may take up to 15 minutes until MGW x100 is ready to operate again.

   - If this software version supports the currently installed version of MGW EMS, MGW x100 logs on again.
   - If this software version requires a different version of MGW EMS, MGW x100 remains logged off. In this case, close the currently installed MGW EMS and refer to the instructions on installing a different version.

**Note**

- If you wish to upgrade or downgrade across several software versions, you have to upgrade/downgrade stepwise. For example, to upgrade version 3.5 to version 4.5, you have to first upgrade to version 4.0.2 before you can upgrade to version 4.5.
- Redundant host controllers must have the same default software version activated.
- We recommend stopping all channels before activating a software version.
- To free disk space, we recommend deleting rarely used software versions and keeping them available on a PC or server on the network.

## To delete a software version:

1. If not already done, start MGW EMS and log on to MGW x100 as explained in the user manual.

2. Make sure that the desired version is not active.

3. Select the desired software version and click **Del**

. The selected software version is deleted and the associated VDF file removed from the Available Versions list.

**Note**

The default version cannot be deleted.

# Chapter 2
# User Manual

## In This Chapter


- Accessing MGW x100 57
- Main Window Overview 61
- Setting SAP (Session Announcement Protocol) 69
- Setting NTP (Network Time Protocol) 71
- Viewing and Setting Service Parameters 73
- Creating and Editing a Channel Profile 90
- Live Encoding Parameters 104
- DVB Recasting/Transrating Parameters 127
- DVB Transcoding Parameters 129
- Target Parameters 136
- Version Management 141
- Operating Channels 143
- In Case of Problems 144
- Reports 145

# Accessing MGW x100

You manage MGW x100 using MGW EMS, an SNMP based management application installed on a PC on the network, which allows you to remotely add, edit and remove service channels associated with installed hardware. Before starting to operate service channels, you have to log on to the desired MGW unit.

## Users

MGW units ship with three default users configured, each one associated with a certain user profile. The password for the default users is **optibase**. You can add, edit and delete additional users associated with these user profiles. Users are specific to the unit you are logging on to.

| User Profile | User | User Rights |
|---|---|---|
| **Guest** | guest | Views channel parameters and profile |
| | | Views the list of users allowed to log on to this unit. |
| | | Views the list of users currently logged on to this unit. |
| **Administrator** | admin | **In addition to the Guest rights:** |
| | | Sets channel parameters. |
| | | Adds and removes channels. |
| | | Starts and stops playing channels. |
| **Super User** | super | **In addition to the Administrator rights:** |
| | | Adds, edits and removes users allowed to log on to this unit. |
| | | Logs off other users. |
| | | Restarts this unit. |

**Table 9: MGW x100 Users**

**Note**

- User names and passwords may consist of max. 255 ASCII-English characters.
- Only one Super User or Administrator can log on to MGW x100 at a time. If you try to log on as Super User or Administrator and there is already a Super User or Administrator logged on, MGW x100 logs you on as Guest.
- If MGW EMS fails while Super User or Administrator is logged on, the relevant user remains listed. In this case, log on again as Super User or Administrator. Although registered as Guest, you will be able to remove the Super Use or Administrator from the list.

## Working with several Units

Depending on the Management PC's available system resources, you can open several MGW EMS instances at a time allowing you to manage multiple MGW units.

To switch to additional units, you may use **Re-Login**. You can also use **Re-Login** to switch between MGW 1000, MGW 1100 and MGW x100 units.

| Required Memory (MB) | Number of active MGW EMS instances |
|---|---|
| 50 | 1 |
| 100 | 2 |
| 300 | 6 |

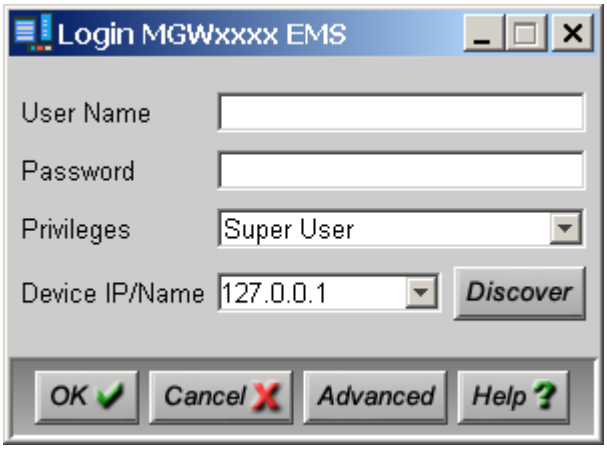
**Table 10: Required Resources for running multiple Instances of MGW EMS**

**Note**

We recommend not opening more than six MGW EMS instances at a time.

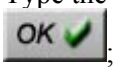
## Logging on to MGW x100

1. On the Management PC, go to the Start menu and then to **MGW EMS**; the Login window appears with the default IP address you defined.




2. When required, enter a different IP address in the respective field and choose the desired user rights from the Privileges list.

   - To view a list of additional IP addresses you defined for frequently used units, click the Arrow button to the right.
   - To scan the network for all available units within the Management PC's workgroup and VLAN, click **Discover** .
   - Select the desired unit; the associated unit's IP address appears.

3. Type the user name and password in the respective fields and click **OK** 

; the MGW unit is identified and MGW EMS appears with the Boards page open. The unit's IP address appears in the Status bar to the left and the current user level to the right.

---

**Note**

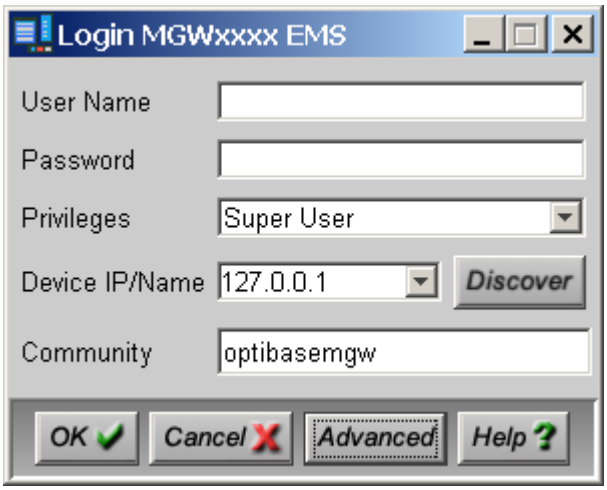
Only one Super User or Administrator can log on to a specific MGW unit at a time. If you try to log on as an additional Super User or Administrator, the relevant unit logs you on as Guest.

---

## To Use SNMP Community String:

MGW x100 provides a higher level of security using SNMP Community String.

1. In the Login window click **Advanced.** An expanded Login window with Community String appears.




2. In the Community field, enter the required community string.

---

**Note**

The community string is registered in the *EMSConfig.ini* file.

---

3. To close the expanded login window click **Advanced.**

4. click **OK**

.

## To check the MGW Unit Status after logging in:

1. Use the following indications:

   - The blue arrow to the upper left and the green LED in the Status bar indicate that the MGW unit is responding properly.

- If the arrow to the upper left is broken and turns red together with the LED in the Status bar, The MGW unit has either been switched off or has stopped responding.

## Logging on to a different Unit or as a different User

1. On the toolbar, click **Re-Login**

; the Login window appears.
2. Enter the unit's IP address or hostname in the respective field and choose the desired user from the Privileges list.
   - To log on to the same unit as a different user, leave the IP address as is and choose the desired user from the Privileges list.
3. To learn more about the Main window, refer to the next page.

## Viewing a list of permitted Users

- In the Menu bar, go to **Login** and then to **Users/Permissions Table**; the currently defined users appear.

## Viewing a list of current Users

- In the menu, go to **Login** and then to **Current Users Table**; the current users appear with the IP address of the Management PC or the user group. This list also displays each user's logon time.

## Forcing a User Out

1. In the menu, go to **Login** and then to **Current Users Table**; the current users appear.
2. Select and right-click the desired user and then choose **Force Logout**; the associated MGW unit notifies the relevant user that he/she has been logged off.

## Logging Off

- On the Main window's Title bar, click Exit and confirm your request; the associated MGW unit logs off and MGW EMS closes.

# Main Window Overview

By default, the MGW EMS Main window appears with the Boards page open. The Boards page displays currently installed boards and lets you view or set parameters. The Channels page displays the current channel profile and lets you add, edit, remove and operate channels.

## The Boards Page

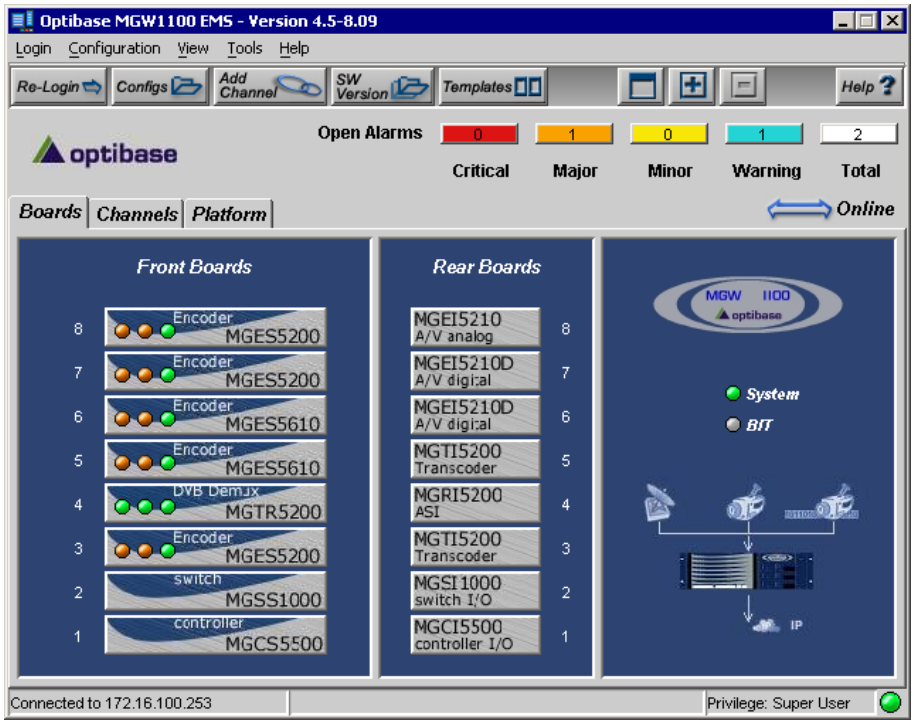
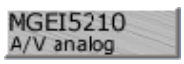



**Figure 13 .MGW EMS - Boards Page**

| LEDs | Status | Description |
|---|---|---|
| System | Green<br>Red | MGW 1100 unit is running.<br>System error. |
| BIT | Green,<br>Gray | Not used at present. |
| **Images** | **Description** | |
| | Reflects an installed service board with associated LEDs (front). Information regarding the LED status can be found in the install guide.<br>Click to open a window that displays the respective service board's parameters. | |
|  | Reflects an installed I/O board (rear).<br>Click to open a window that displays the respective I/O board's parameters. | |

| | |
|---|---|
| | Parameters for the host controller and switch I/O boards cannot be viewed or set using MGW EMS. |

**Table 11: Boards Page**

## The Channels Page

- On the Main window, click the Channels tab; the Channels page appears.

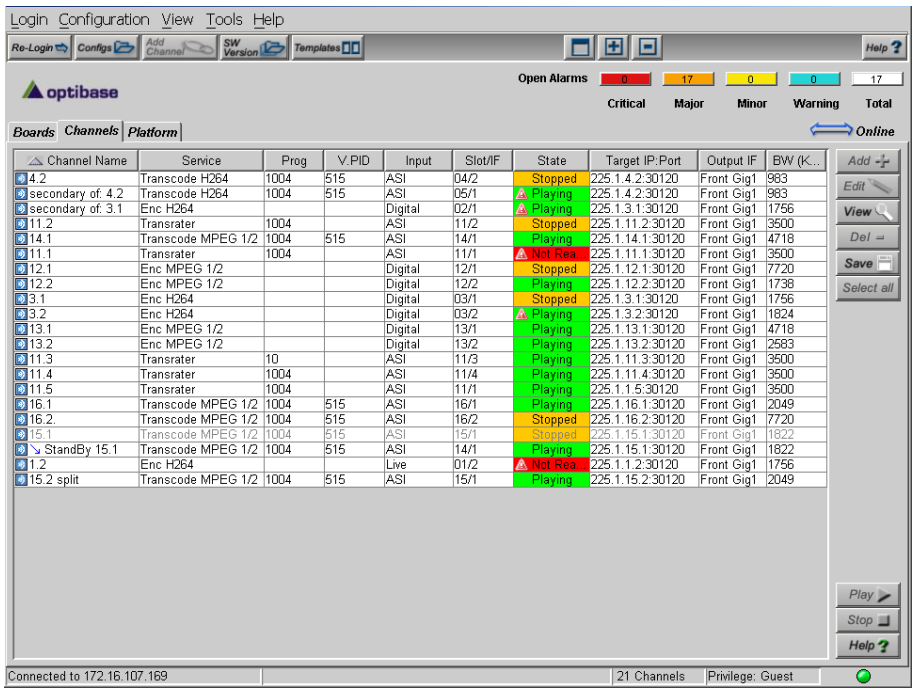

Login Configuration View Tools Help
Re-Login
Configs
Add Channel
SW Version
Templates
Help
optibase
Open Alarms
0
17
0
0
17
Critical
Major
Minor
Warning
Total
Boards
Channels
Platform
Online
Channel Name
Service
Prog
V.PID
Input
Slot/IF
State
Target IP:Port
Output IF
BW (K...
4.2 Transcode H264 1004 515 ASI 04/2 Stopped 225.1.4.2:30120 Front Gig1 983
secondary of: 4.2 Transcode H264 1004 515 ASI 05/1 Playing 225.1.4.2:30120 Front Gig1 983
secondary of: 3.1 Enc H264 Digital 02/1 Playing 225.1.3.1:30120 Front Gig1 1756
11.2 Transrater 1004 ASI 11/2 Stopped 225.1.11.2:30120 Front Gig1 3500
14.1 Transcode MPEG 1/2 1004 515 ASI 14/1 Playing 225.1.14.1:30120 Front Gig1 4718
11.1 Transrater 1004 ASI 11/1 Not Rea. 225.1.11.1:30120 Front Gig1 3500
12.1 Enc MPEG 1/2 Digital 12/1 Stopped 225.1.12.1:30120 Front Gig1 7720
12.2 Enc MPEG 1/2 Digital 12/2 Playing 225.1.12.2:30120 Front Gig1 1738
3.1 Enc H264 Digital 03/1 Stopped 225.1.3.1:30120 Front Gig1 1756
3.2 Enc H264 Digital 03/2 Playing 225.1.3.2:30120 Front Gig1 1824
13.1 Enc MPEG 1/2 Digital 13/1 Playing 225.1.13.1:30120 Front Gig1 4718
13.2 Enc MPEG 1/2 Digital 13/2 Playing 225.1.13.2:30120 Front Gig1 2583
11.3 Transrater 10 ASI 11/3 Playing 225.1.11.3:30120 Front Gig1 3500
11.4 Transrater 1004 ASI 11/4 Playing 225.1.11.4:30120 Front Gig1 3500
11.5 Transrater 1004 ASI 11/1 Playing 225.1.1.5:30120 Front Gig1 3500
16.1 Transcode MPEG 1/2 1004 515 ASI 16/1 Playing 225.1.16.1:30120 Front Gig1 2049
16.2. Transcode MPEG 1/2 1004 515 ASI 16/2 Stopped 225.1.16.2:30120 Front Gig1 7720
15.1 Transcode MPEG 1/2 1004 515 ASI 15/1 Stopped 225.1.15.1:30120 Front Gig1 1822
StandBy 15.1 Transcode MPEG 1/2 1004 515 ASI 14/1 Playing 225.1.15.1:30120 Front Gig1 1822
1.2 Enc H264 Live 01/2 Not Rea. 225.1.1.2:30120 Front Gig1 1756
15.2 split Transcode MPEG 1/2 1004 515 ASI 15/1 Playing 225.1.15.2:30120 Front Gig1 2049
Add
Edit
View
Del
Save
Select all
Play
Stop
Help
Connected to 172.16.107.169
21 Channels
Privilege: Guest

**Figure 14 .MGW EMS - Channels Page**

Secondary Stream channels appear marked by the secondary stream icon left to the Channel Name column as shown in the figure below:

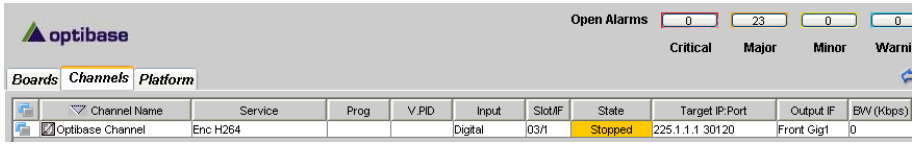



**Figure 15 .Channel List - Secondary Stream**

| Buttons | Description |
|---|---|
| Add | Opens the Channel wizard to add a channel. |
| Edit | Opens the Parameter window to edit a selected channel. |
| View | Opens the Parameter window to view a selected channel's parameters. |
| Del | Deletes selected channels. |
| Save | Saves a selected channel as template. |
| Select all | Selects all channels. |
| Play | Plays selected channels. |
| Stop | Stops selected channels. |
| Help | Opens the associated help topic. |

**Table 12: Channels Page**

## The Platform Page

- On the Main window, click the Platform tab; the Platform page appears.

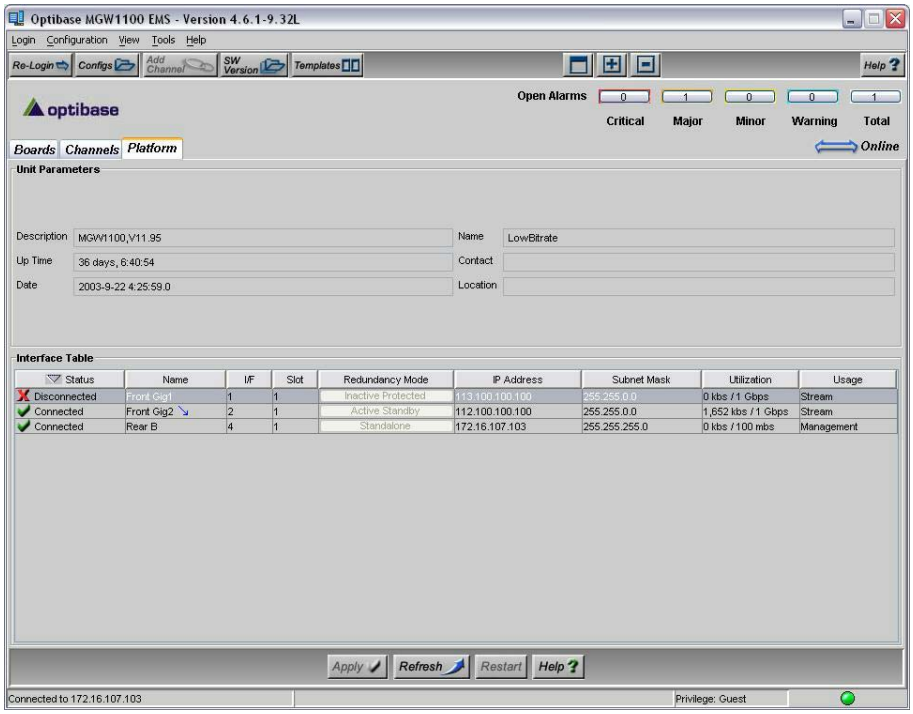

Optibase MGW1100 EMS - Version 4.6.1-9.32L
Login Configuration View Tools Help
Re-Login Configs Add Channel SW Version Templates Help
optibase
Open Alarms
Critical Major Minor Warning Total
Boards Channels Platform
Online
Unit Parameters
Description MGW1100,V11.95
Name LowBitrate
Up Time 36 days, 6:40:54
Contact
Date 2003-9-22 4:25:59.0
Location
Interface Table
Status Name I/F Slot Redundancy Mode IP Address Subnet Mask Utilization Usage
Disconnected Front Gig1 1 1 Inactive Protected 113.100.100.100 255.255.0.0 0 kbs / 1 Gbps Stream
Connected Front Gig2 2 1 Active Standby 112.100.100.100 255.255.0.0 1,652 kbs / 1 Gbps Stream
Connected Rear B 4 1 Standalone 172.16.107.103 255.255.255.0 0 kbs / 100 mbs Management
Apply Refresh Restart Help
Connected to 172.16.107.103
Privilege: Guest

**Figure 16 .MGW EMS - Platform Page**

## Unit Parameters

- To change the date, time, name and contact/location information, use MGW x100's command line interface. For instructions on changing the relevant parameters, refer to MGW x100's installation guide.

| Options | Description |
|---|---|
| Description | MGW x100's version. |
| Up Time | The time since system started. |
| Date | The current time and date. |
| Name | MGW x100's hostname. To change MGW x100's host name, refer to the installation guide. |
| Contact | Contact person (optional). To set or change this information, refer to the installation guide. |
| Location | The unit's physical location (optional). To set or change this information, refer to the installation guide. |

**Table 13: Unit Parameters**

## Interface Table

| Options | Description | |
|---|---|---|
| Status | Disconnected<br>Connected | No network segment connected<br>Network segment connected |
| Name | Displays the interface name in accordance to the interface physical characteristics and its position on the host board | |
| I/F | Each interface is associated with a number that identifies its type and location on the respective host controller unit.<br>This number appears also in the Output Interface window on the UDP Target page if you select the output interface manually as required for Multicast targets. | |
| Slot | Displays the slot in which the respective host controller unit is installed. | |
| Redundancy Mode | Allows you to set and configure the network redundancy mode for each interface. Changes are made for Host A and reflected on Host B automatically.<br>To configure network redundancy perform the following steps:<br>Click the appropriate interface in the Redundancy Mode column. The Set Redundancy for I/F window appears.<br>Set the following parameters:<br>• Redundancy Status (Protected or Standalone)<br>• Redundant I/F - only if Protected was selected, select the appropriate interface for redundancy. The Redundancy Mode for the backup interface is updated automatically.<br>This table describes the displayed redundancy modes for both the primary and backup interfaces: | |

| | | | |
|---|---|---|---|
| | **Status Description** | **Primary Interface** | **Backup Interface** |
| | When interface is set to Standalone | Standalone | Standalone |
| | When interface is redundant | Protected | Standby |
| | When the primary interface fails | Inactive Protected | Active Standby |
| IP Address | Displays the respective network interface's IP address and subnet mask respectively. Instructions on changing the IP address and the subnet mask can be found below. | | |
| Subnet Mask | Displays the respective network interface's subnet mask. | | |
| Utilization | Specified the how much bandwidth is used out of the total bandwidth. | | |
| Usage | Specifies the usage of the interface - Stream or Management | | |

**Table 14: Interface Table**

**Note**

- Do not use the NICs on the host controller I/O board(s) for the output as this will disrupt the communication between MGW EMS and the MGW unit.
- Depending on purchased capabilities, DVB recasters and DVB transraters can transmit via a separate NIC on the relevant I/O board, thus providing additional bandwidth of 60 Mbps per DVB recaster/transrater..
- If you use a host controller without the optional PMC module, interfaces #5 and #6 are not assigned.

### Editing Interface Parameters

**Every interface has a default IP address and a subnet mask assigned, which can be found in the installation guide.**

If you have Host B and Switch B installed as a backup (applicable to MGW 5100 only), make sure to assign the network interface for the management on Host B to the same subnet, otherwise MGW EMS will be unable to switch over to Host B in case Host A and/or Switch A fail.

In case Host B and Switch B take over, the IP addresses and subnet masks for the output interfaces on Host B are updated automatically.

### To assign new interface parameters:

1. Before changing a network interface's IP address or subnet mask, stop all channels.

2. On the Platform page, double-click the desired parameter; the desired parameter becomes available for editing.

3. Enter the desired parameter and click **Apply**

; the desired parameter is changed.

4. If you change a network interface's IP address or the subnet mask, you will be asked if you want to restart MGW x100. Restarting MGW x100 is recommended but not required.

You can import network settings from different MGW x100 units.

### Setting Network Interface Redundancy

If network interface redundancy is required, any NIC used for streaming can be set as a backup so when the primary NIC fails, the assigned backup NIC takes over.

#### To assign a backup network interface:

1. On the Platform page, select the appropriate interface to be backed up by clicking the Standalone button in the Redundancy Mode column. The **Set Redundancy I/F…** window is displayed.

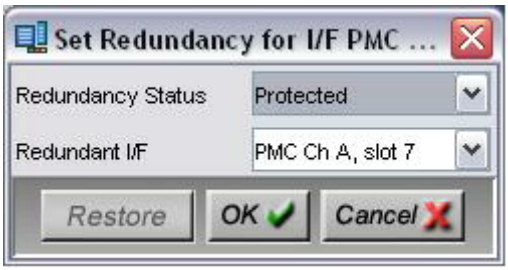



**Figure 17 .Set Redundancy for I/F window**

2. From the drop-down menu in the Redundancy Status select **Protected**.

3. From the drop-down menu in the Redundant I/F select the appropriate interface to be the backup and click **OK**.

4. On the Platform page click **Apply**.

---

**Note**

- Ensure to click Apply otherwise new settings will not apply.
- Management NIC cannot be used for redundancy.
- When a streaming NIC (that has playing channels) is set as a backup NIC for another streaming NIC, these playing channels will be automatically passed over to the protected NIC. Ensure that the combined streaming bandwidth is within the NIC bandwidth limit.

---

### Recovery from a NIC Failure

When two NICs are in a redundancy mode and the protected NIC fails (shows as **Disconnected**) the followings will occur:

- The playing channels of the protected NIC will be automatically passed over to the standby NIC.
- The Redundancy Mode of the backed up NIC will be changed from Protected to Inactive Protected.
- The Redundancy Mode of the standby NIC will be changed from Standby to Active Standby.

The following  are few of the options available for recovery after the connection problem was fixed:

- Remaining in a Inactive Protected /Active Standby NIC states. The currently inactive NIC functions as the backup NIC.
- Restoring to the original redundancy state by clicking on the Inactive Protected button and in the **Set Redundancy I/F…** window click **Restore**.

## Tools

| Options | Description |
|---|---|
| | Applies changes. This button is disabled if you are logged on as Guest. |
| | Updates parameters that have changed while the Platform page was open. |
| | Restarts MGW x100. It will take several minutes until MGW x100 finishes booting and logs you back on. This button is disabled if you are logged on as Guest. |

**Table 15: Tools**

## Buttons and Displays

The Main window's Menu and Status bars are available from all pages : Boards, Channels and Platform. The following table explains available options.

| Options | Description |
|---|---|
| | Opens the Login window to log on to a different unit or as a different user. |
| | Opens the Configuration Manager, which lets you save, and load a channel profile associated with a certain board profile. |
| | Opens the Channel wizard and lets you add a channel. |
| | Opens the Software Version manager, which lets you add, activate and remove software versions. |
| | Opens the Template manager, which lets you view, add and remove channel templates. |
| | Maximizes the Main window. |
| | Increases the Main window. |
| | Decreases the Main window. To minimize the Main window, use the Minimize button in the Title bar to the right. |
| | Opens the MGW EMS help. The MGW EMS help requires an Internet browser and has been optimized for Internet Explorer 5.x and higher. |
| | Displays a list of open alarms associated with the respective level of severity. |
| **Displays** | **Description** |
| | MGW x100 is responding properly. |
| | MGW x100 has been switched off or is not responding. |
| | The IP address of the MGW x100 unit that you are logged on to. |
| | Current user profile. |

**Table 16: Tool Bar, Status Buttons and Displays**

# Setting SAP (Session Announcement Protocol)

By default, SAP is enabled for the channel but disabled as per the system level (see figure below).

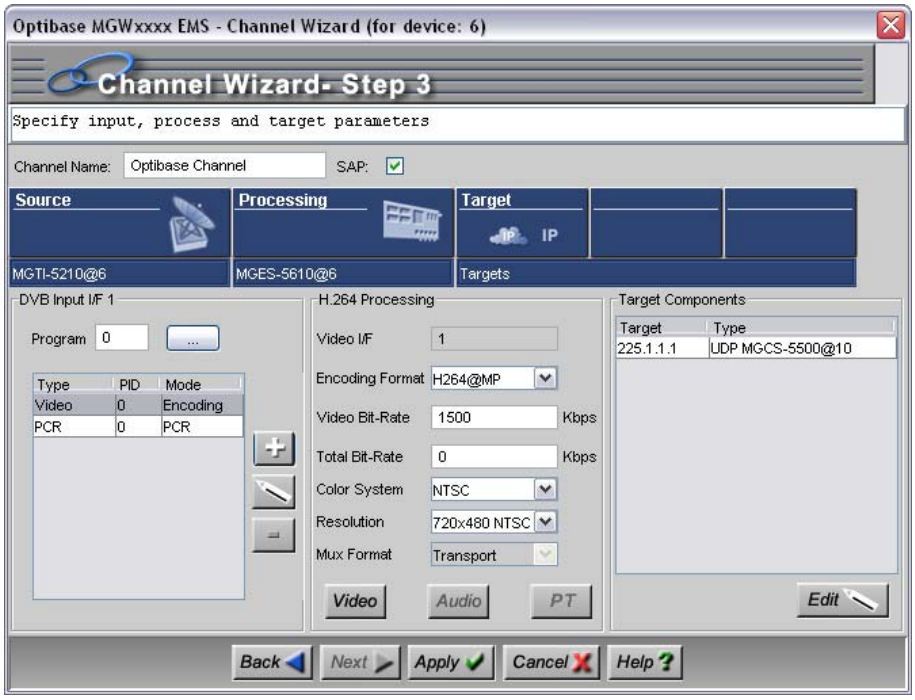



**Figure 18 .Enabling SAP for a Channel**

In order to implement SAP services, perform the following steps:

1. From the main menu select **Tools>SAP** Parameters. The SAP Parameters window appears.

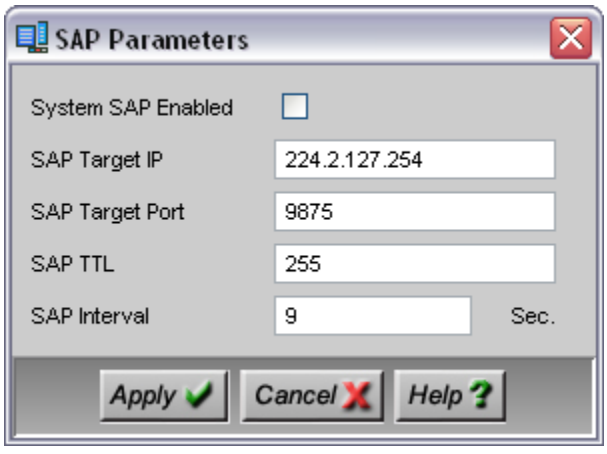



**Figure 19 .SAP Parameters window**

2. Select the **System SAP Enabled** check box.
3. If required, modify the following default parameters: Target IP, Target Port, TTL, Interval.
4. Click **Apply.** This will enable SAP for all SAP enabled channels.

**Note**

- To disable SAP services (for all enabled SAP channels) clear the System SAP Enabled check box and click Apply.
- To enable or disable SAP services for a specific channel click Edit on the Channels page and select or clear the SAP check box.

# Setting NTP (Network Time Protocol)

In order to configure NTP services, perform the following steps:

1. From the main menu select **Tools>NTP**. The NTP Parameters window appears.

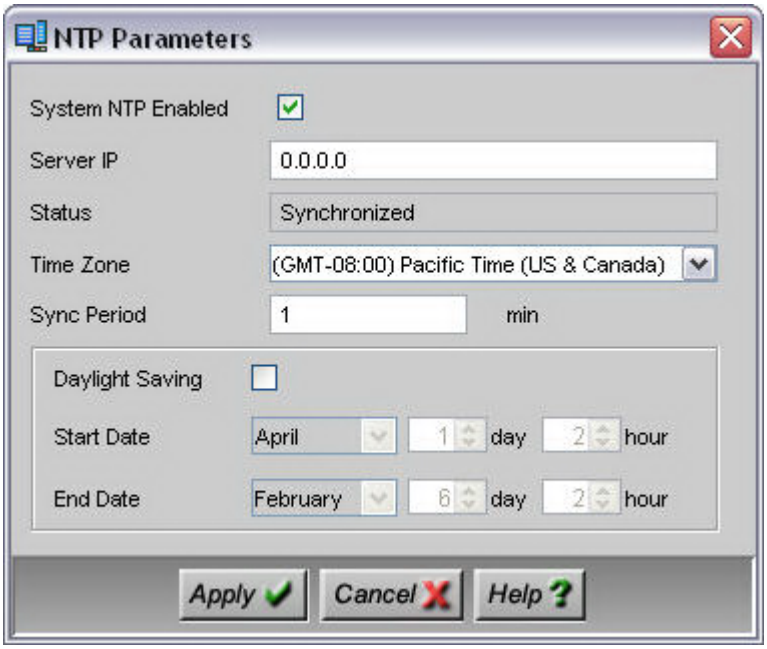



**Figure 20 .NTP Parameters**

2. Select the **System NTP Enabled** check box.

3. If required, set the following default parameters: **Server IP, Time Zone**, and **Sync Period.**

**Note**

In the Sync Period field you set the time in which the Host will be synchronized with the NTP server.

All service boards are synchronized with the Host every minute regardless what is set in the Sync Period field.

4. If required select the **Daylight Saving** check box and set the **Start Date** and the **End Date** and **Hour.**

5. Click **Apply.** This will enable NTP functionality.

   The **Status** field indicates:

   - **Synchronized** - when synchronization is successful

- **Error** - when synchronization fails

**Note**

To disable NTP clear the System NTP Enabled check box and click Apply.

# Viewing and Setting Service Parameters

MGW x100 consists of a chassis with service units installed. These service units consist of service and corresponding I/O boards installed at the front and the rear respectively. Board parameters can be viewed by clicking the relevant board's image on the Boards page. Tools available from every board parameter page are listed and explained below.

## Tools

This section lists and explains tools that appear with board parameter screens.

| Buttons | Description |
|---|---|
| | Updates the displayed parameters. |
| | Closes the current window. |
| | Opens the associated help topic. |
| | Not used at present. |
| | Resets service boards; channels associated with the relevant service boards will be removed. If you reset Host A or the switch, the entire MGW x100 unit resets.<br>This option is not available for I/O boards. |
| | Not used at present. |
| | Displays the board's details, such as version and state. |

**Table 17: Tools**

## Host Controller Boards

- MGW EMS lets you change parameters of the host controller service board, but not host controller I/O board parameters.

- To access the host controller service board's parameters, click the relevant service board's image (front).

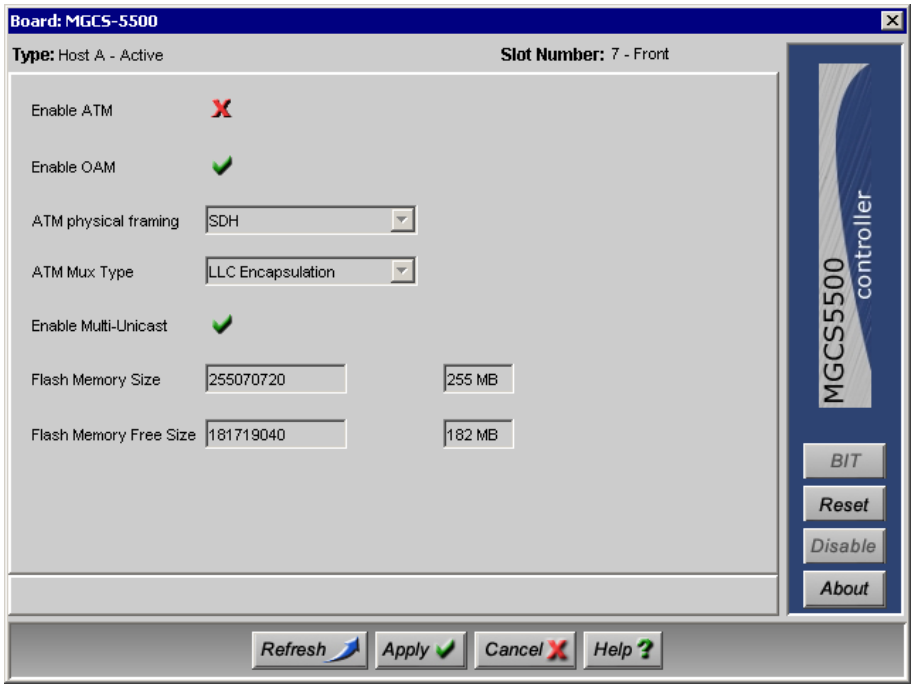



**Figure 21 .Host A Board Parameters**

| Options | Description |
|---|---|
| Enable ATM | X = ATM unavailable |
| Enable OAM | X = Disabled, ATM unavailable |
| ATM Physical Framing | Not used. |
| ATM Mux Type | Not used. |
| Enable Multi-Unicast | ✓ = Enabled |
| | X = Disabled |
| **Display Fields** | **Description** |
| Flash Memory Size | Total disk space. |
| Flash Memory Free Size | Available disk space. |

**Table 18: Host Controller Service Board Parameters**

## Switch Boards

- MGW EMS does not let you view or change Switch board parameters.

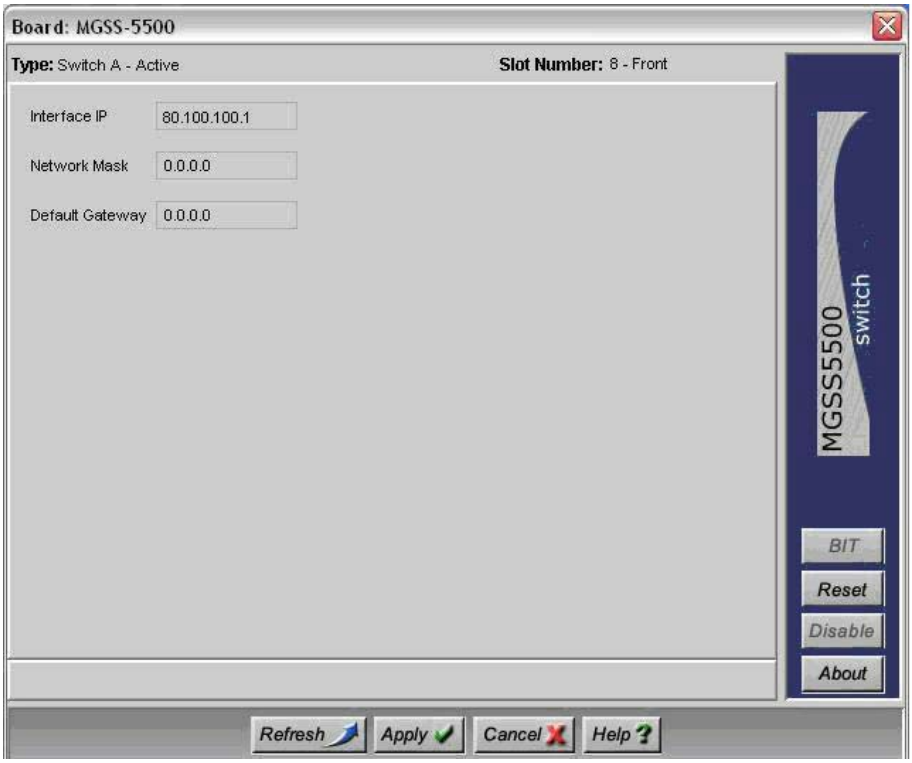



**Figure 22 .Switch Board Parameters**

## Encoders

- MGW x100 supports H.264 and MPEG encoders. The encoder service boards are referred to as MGES-5610 and MGES-5200 respectively.
- To access encoder service board parameters, click the associated image.

## H.264 Encoder Service Boards

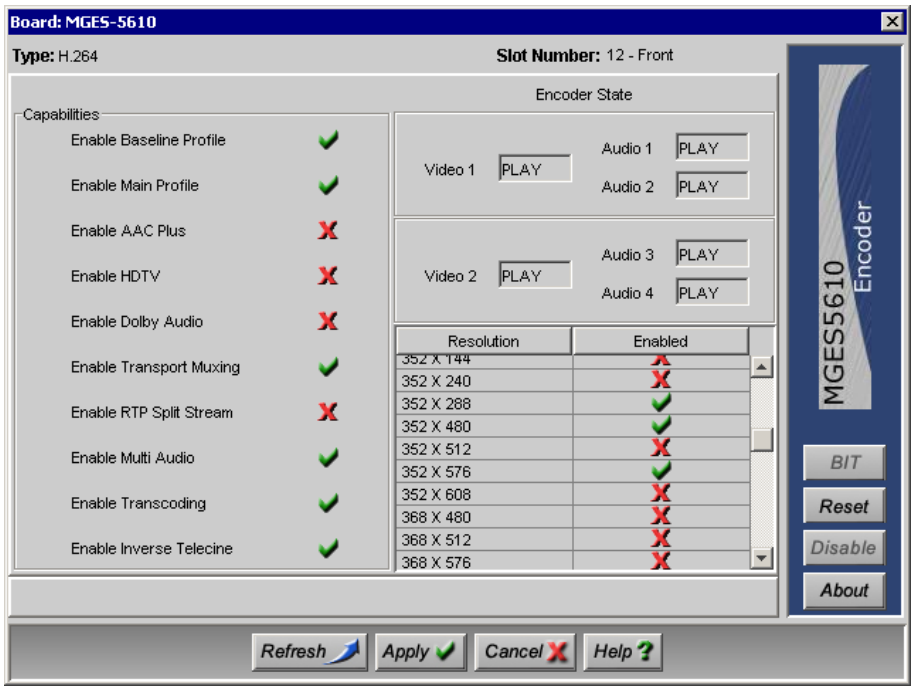



**Figure 23 .H.264 Encoder Service Board Parameters**

| Capabilities | Comments |
|---|---|
| Enable Baseline Profile | ✔ = Encoding using the H264@BL microcode enabled. |
| | ✘ = Encoding using the H264@BL microcode disabled. |
| Enable Main Profile | ✔ = Encoding using the H264@MP microcode enabled. |
| | ✘ = Encoding using the H264@MP microcode disabled. |
| Enable AAC Plus | ✔ = AAC+ encoding enabled. |
| | ✘ = AAC and MPEG-1 Layer 2 encoding enabled. |
| Enable HDTV | ✔ = Encoding using the H264@HP enabled. |
| | ✘ = Encoding using the H264@HP disabled. |
| Enable Dolby Audio | ✔ = Dolby encoding enabled. |
| | ✘ = Dolby encoding disabled. |
| Enable Transport Muxing | ✔ = Muxing of transport streams enabled. |
| | ✘ = Muxing of transport streams disabled. |
| Enable RTP Split Stream | ✔ = Encoding separate RTP video and audio streams enabled. |
| | ✘ = Encoding RTP streams disabled. |

| | |
|---|---|
| Enable Multi Audio | ✔ = Encoding two stereo channels per video channel enabled.<br>✘ = Encoding one stereo channel or two mono channels. |
| Enable Transcoding | ✔ = H.264 Transcoding available.<br>✘ = H.264 Transcoding unavailable. |
| Lists | Description |
| Encoder State | FREE: The input is available and a channel can be added.<br>STOP: A channel is added, but currently not transmitting.<br>PLAY: A channel is added and currently transmitting. |
| Resolutions | ✔ = Resolution enabled.<br>✘ = Resolution disabled. |

**Table 19: H.264 Encoder Service Board Parameters**

## MPEG Encoder Service Boards

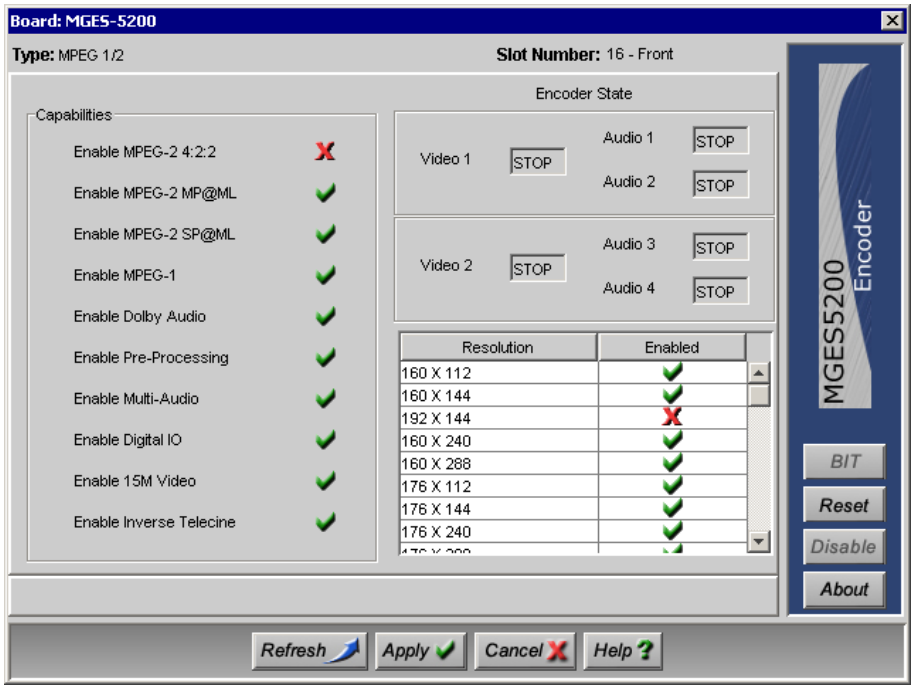



**Figure 24 .MPEG Encoder Service Board Parameters**

| Capabilities | Comments |
|---|---|
| Enable [Format] | ✔ = Enabled.<br>✘ = Disabled. |
| Enable Pre-Processing | ✔ = Pre-processing filters (e.g. de-interlacing) enabled.<br>✘ = Pre-processing filters disabled. |

| | |
|---|---|
| Enable Multi-Audio | ✔ = You can encode up to two audio channels per video channel.<br>✘ = You can encode only one audio channel per video channel. |
| Enable Digital I/O | ✔ = Encodes analog or digital input.<br>✘ = Encodes analog input only. |
| Enable 15M Video | ✘ = Video encoding bit-rates above 10 Mbps are unavailable.<br>✔ = Video encoding bit-rates up to 15 Mbps are available. |
| **Lists** | **Description** |
| Encoder State | FREE: The input is available and a channel can be added.<br>STOP: A channel is added, but currently not transmitting.<br>PLAY: A channel is added and currently transmitting. |
| Resolutions | ✔ = Resolution enabled.<br>✘ = Resolution disabled. |

**Table 20: MPEG Encoder Service Board Parameters**

**Note**

If both Video 1 and Video 2 display Play or Stop, you cannot add an additional channel associated with the respective encoder.

## Encoder I/O Boards

- Encoder I/O boards are available for analog and digital input and are referred to as MGEI-5210A and MGEI-5210D respectively.
- To display the desired I/O board parameters, click the associated image.
- To display input parameters for a certain video or audio input, choose the relevant input from the Input tree to the left.

## Analog Video Input

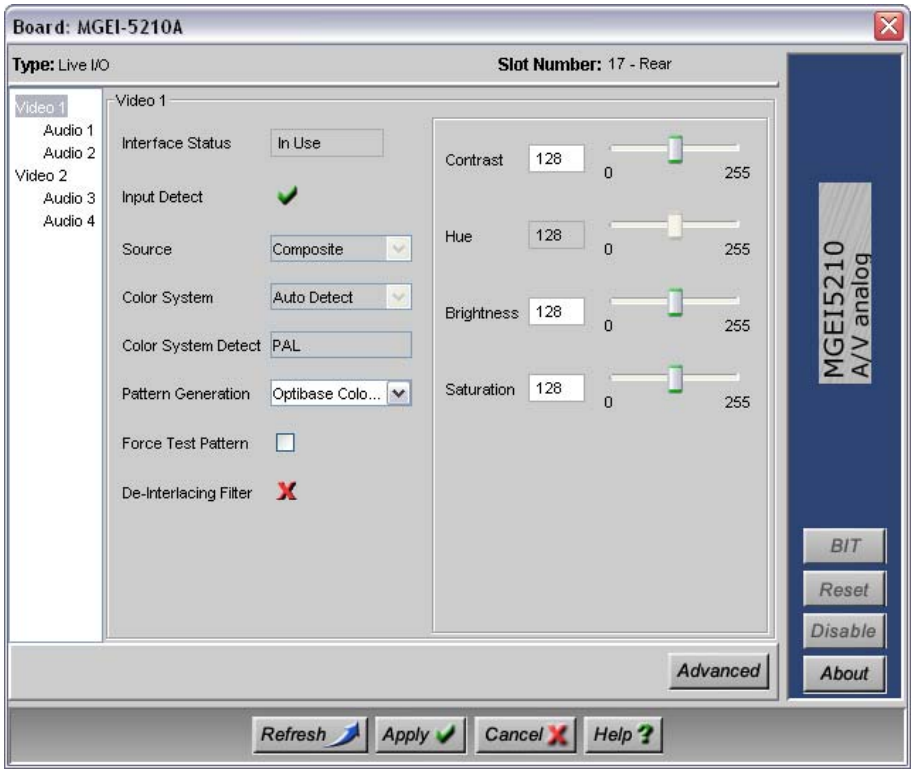



**Figure 25 :Analog Video Input Parameters**

| Parameters | Settings | Comments |
|---|---|---|
| Interface Status | Not in Use | Channel stopped or no channel. |
| | In Use | Channel assigned and playing. |
| Input Detect | ✗ | No video source. |
| | ✓ | Video source detected. |
| Source | Composite | Analog video signal that combines all the components in one signal. |
| | S-Video | Analog video signal that carries separate luminance and chroma signals. |
| Color System | NTSC, PAL, SECAM, Auto Detect | Determines the color system. MGW x100 and your source device must be set to the same color system parameter. If you choose **Auto Detect**, MGW x100 automatically detects the correct color system (except SECAM which has to be set manually). |
| Color System Detect | NTSC, PAL, SECAM | If you choose **Auto Detect**, this field displays either NTSC or PAL accordingly. SECAM must be set manually. |
| | | If the color system could not be recognized or you chose the wrong color system, this field displays **N/A**. |
| Pattern Generation | Optibase Color Bar | If you choose a test pattern while transmitting a stream, the receiver receives |

| Parameters | Settings | Comments |
|---|---|---|
| | | the test pattern when no encoded content is available. |
| Force Test Pattern | Check this option if you wish to transmit a test pattern instead of the encoded content. | This option enables you to 'blend out' a section of the received content. |
| De-Interlacing Filter | To convert input from interlaced to progressive frames, check the associated check box. | Available for sources connected to the video input interfaces labeled **A** - applicable only in MPEG-2 encoding.<br>We recommend using this option for MPEG-2 streams at bit-rates lower than 3200000 bps. |
| Contrast | 0 - 255<br>(the default is 128) | Adjusts the polarity between white and black in the video signal. If white is very distant from black, a signal has high contrast. If white is closer to black, a signal has low contrast causing it to appear with a gray tone. Adjusting the contrast changes the relation between the color steps. |
| Hue | 0 - 255<br>(the default is 128) | Available for NTSC compliant inputs.<br>Adjusts the wavelength of the base colors (i.e. red, green, yellow) in a video signal. Adjusting the hue creates linear change in the phase of all the colors. |
| Brightness | 0 - 255<br>(the default is 128) | Adjusts the amount of light emitted in the video signal. |
| Saturation | 0 - 255<br>(the default is 128) | Adjusts the amount of color in the signal. |

**Table 21: Video Input Parameters**

- MGW x100 does not support SECAM sources.
- Pre-processing filters are available if **Pre-Processing** is enabled ✔ on the associated Encoding Board Parameter page.

### Advanced Video Input Parameters

- To view and set advanced input parameters for Composite and S-Video inputs, click **Advanced**

; a window appears displaying additional video input parameters.

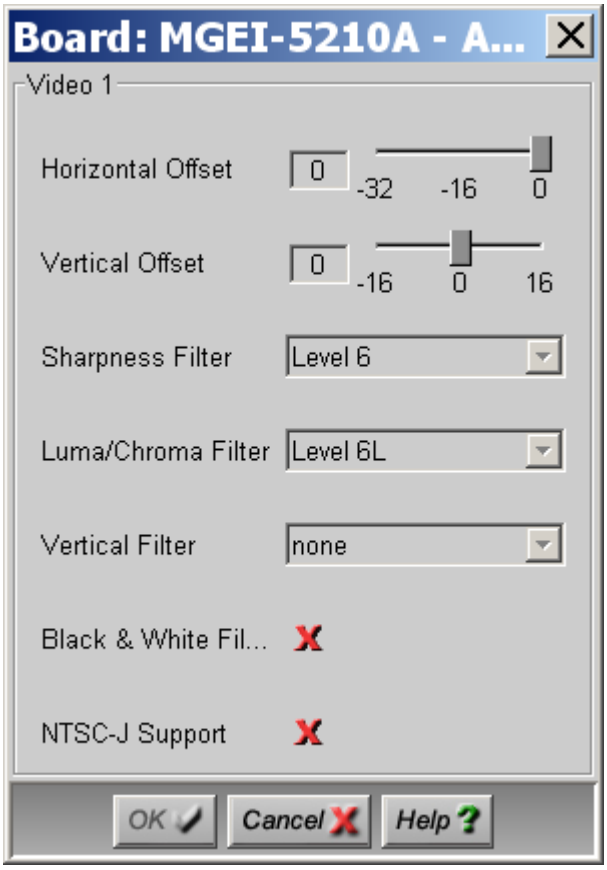



**Figure 26 .Analog Video Input > Advanced**

- To change and save advanced input parameters, click **OK**

.
- To close the Advanced Input Parameter window without making changes, click **Cancel**

.

| Parameter | Settings | Comments |
|---|---|---|
| Horizontal Offset | (- 32) - (0) pixels<br>(the default is 0) | A negative horizontal offset value moves the screen to the left and a positive value moves it to the right. Changes you apply appear in the encoded content only. |
| Vertical Offset | (-16) - (16) pixels<br>(the default is 0) | A negative horizontal offset value moves the screen down and a positive value moves it up. |
| Sharpness Filter | Level 0 - 15<br>(the default is Level 6) | Filters high frequencies in the picture's black-and-white portion out to obtain a sharper picture. |
| Luma/Chroma Filter | Level 0L - 7L and<br>Level 0H - 7H<br>(the default is Level 6L) | Chrominance Low Pass filter for Composite.<br>Luminance Notch filter for S-Video. |
| Vertical Filter | Level 1 - 7<br>(the default is 0) | Smoothes the picture by averaging two adjacent horizontal lines. |
| Black & White Filter | Check this option when transmitting black and white. | This option eliminates color effects in black and white streams. |
| NTSC-J Support | Check this option when encoding a Japanese NTSC source. | Accounts for different black values in Japanese NTSC sources. |

**Table 22: Advanced Video Input Parameters**

**Note**

Pre-processing filters are available if Pre-Processing is enabled ✔ on the associated Encoding Board Parameter page.

## Analog Audio Input Parameters

- MGW x100 does not support advanced audio parameters.

| Parameter | Settings | Comments |
|---|---|---|
| Interface Status | Not in Use | Channel stopped or no channel. |
| | In Use | Channel assigned and playing. |
| Input Detect | ✘ | No audio source. |
| | ✔ | Audio source detected. |
| Source | Unbalanced (default)<br>Balanced | |
| Embedded Audio Pair | N/A | Not used for analog video inputs. |
| Sample Rate | 32KHz, 44.1KHz, 48KHz | Determines how many samples of analog audio are collected per second while capturing the audio stream. This parameter affects the audio quality. |
| Tone Generation | Off | Not available. |

**Table 23: Basic Audio Input Parameters**

## Digital Video Input

- If you click an Encoder I/O board image, video input parameters appear. Advanced parameters are not available.

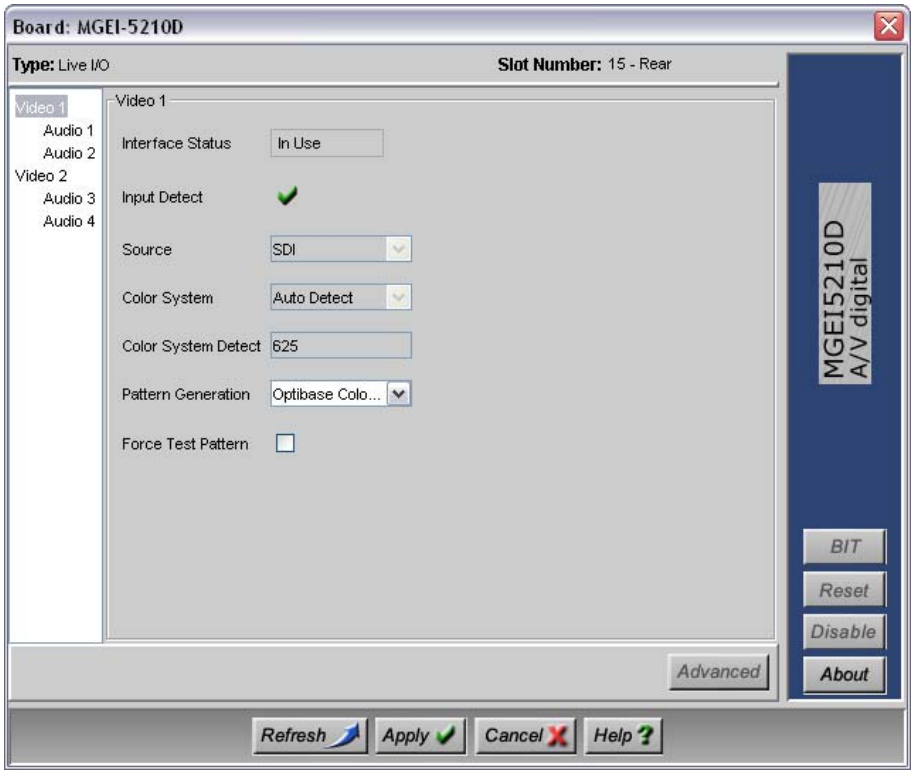



**Figure 27 .Digital Video Input Parameters**

| Parameters | Settings | Comments |
|---|---|---|
| Interface Status | Not in Use | Channel stopped or no channel. |
| | In Use | Channel assigned and playing. |
| | SDI | SDI compliant digital video signal. |
| Input Detect | ✗ | No video source. |
| | ✓ | Video source detected. |
| Source | SDI | SDI compliant digital video signal. |
| Color System | 525, 625, Auto Detect | Determines the color system. MGW x100 and your source device must be set to the same color system parameter. If you choose Auto Detect, MGW x100 automatically detects the correct color system. |
| Color System Detect | 525, 625 | If you choose Auto Detect, this field displays the correct color system.<br>If the color system could not be recognized or you chose the wrong color system, this field displays N/A. |
| Pattern Generation | Black,<br>Optibase Color Bar | If you choose a test pattern while transmitting a stream, the receiver receives the test pattern |

| Parameters | Settings | Comments |
|---|---|---|
| | (default) | when no encoded content is available. |
| Force Test Pattern | Check to transmit a test pattern instead of the encoded content. | This option enables you to 'blend out' a section of the received content. |

**Table 24: Video Input Parameters**

### Digital Audio Input Parameters

- Verify that the corresponding encoder service board can encode digital input. In the board parameter page, **Digital I/O** must be enabled ✔.

| Parameter | Settings | Comments |
|---|---|---|
| Interface in Use | Not in Use | Channel stopped or no channel. |
| | In Use | Channel assigned and transmitting. |
| Input Detect | ✘ | No audio source. |
| | ✔ | Audio source detected. |
| Source | AES/EBU<br>Embedded 1 | |
| Embedded Audio Pair | Available audio streams, embedded in the SDI input. | Up to 16 audio streams can be embedded per SDI input of which you can select two. Parameters are set automatically. |
| | | This field is available if you selected Embedded under Source Type. |
| Sample Rate | 32KHz, 44.1KHz, 48KHz | Determines how many samples of analog audio are collected per second while capturing the audio stream. This parameter affects the audio quality. |
| | | This field is not available for editing if choosing Embedded under Source Type. |
| Tone Generation | Off | Not available. |
| Detect Sample Rate | Displays the sample rate at which the source has been composed. | If using embedded audio or AES3 (AES/BEU) sources, this field displays the audio sample rate at which the source was composed. |

**Table 25: Basic Audio Input Parameters**

## DVB Recasters and DVB Transraters

- DVB transraters and DVB recasters use the same DVB I/O board.
- To view board parameter pages, click the relevant image. DVB recaster service boards are referred to as MGRS-5200 and DVB transrater service boards are referred to as MGTR-5200.

### DVB Recaster and DVB Transrater Service Boards

- You can specify and change the IP address and the subnet mask for the NIC labeled **10/100 BT 1** on a specific DVB I/O board at the rear. This

NIC is referred to as **Rear Port** in the service board's parameter page and used for direct streaming.

- To assign a generic IP address and a subnet mask to all rear ports in a specific unit, in the menu, go to **Configuration** and choose **Assign Rear Port IP**; the Rear Port Parameters window appears and you can enter a generic IP address and a subnet mask.

- **IP address.** Enter a generic IP address, for example 172.69.195.1; the slot number of each DVB transrater or DVB recaster will be added to the IP address making each IP address unique. For example, if a DVB transrater or DVB recaster is installed in slot 13, the rear associated port has the IP address 172.69.195.14 assigned.

- **Subnet mask.** The subnet mask you enter will be the same for all rear ports associated with DVB recasters and DVB transrater in the relevant unit.

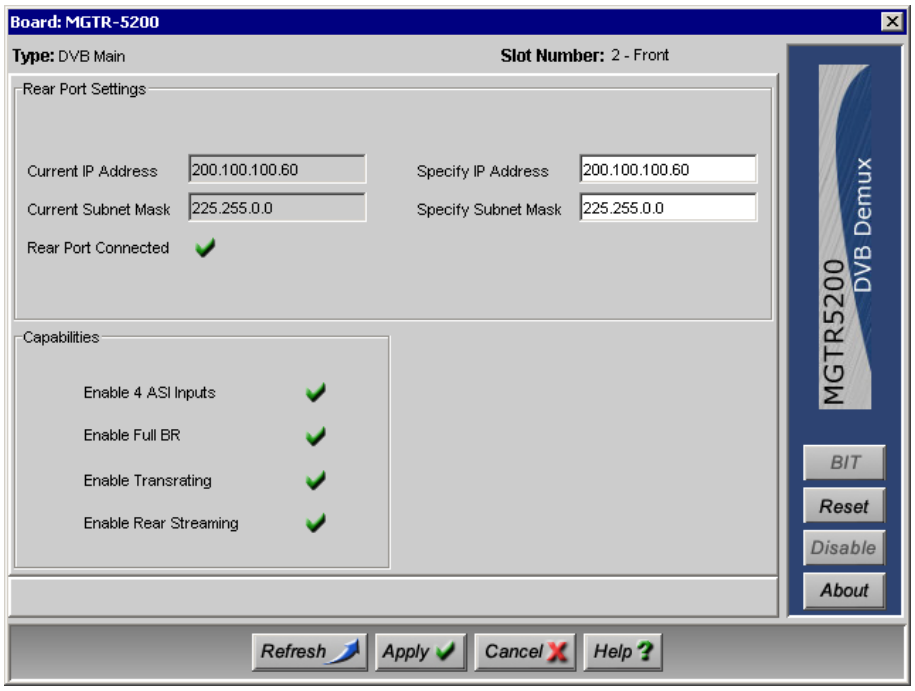



**Figure 28 .DVB Recaster/Transrater Service Board Parameters**

| Rear Port Settings | Description |
|---|---|
| Specify IP Address | Assign an IP address to the NIC labeled 10/100BT 1 on the DVB I/O board.<br>If an IP address is assigned, it appears under Current IP Address. If no IP address is assigned, 0.0.0.0 appears. |
| Specify Subnet Mask | Assign a subnet mask to the NIC labeled 10/100BT 1 on the DVB I/O board.<br>If a subnet mask is assigned, it appears under Current Subnet Mask. If no subnet mask is assigned, 0.0.0.0 appears. |

| Rear Port Settings | Description |
|---|---|
| **Capabilities** | **Description** |
| Enable 4 ASI Inputs | ✔ = All four DVB-ASI input interfaces can connect to DVB sources. Always enabled. |
| Enable Full BR | ✔ = An accumulated bit-rate of 60 Mbps can be transmitted.<br>✘ = An accumulated bit-rate of 40 Mbps can be transmitted. |
| Enable Transrating | ✔ = Enabled, if you have a DVB Transrater Service board installed.<br>✘ = Disabled, if you have a DVB Recaster Service board installed. |
| Enable Rear Streaming | ✔ = 10/100BT 1 on the DVB I/O board is connected to a network.<br>✘ = No network segment connected. |

**Table 26: DVB Recaster/Transrater Service Board Parameters**

**Note**

- To avoid internal network conflicts, do not assign IP addresses to the rear ports that start with 180.100.*.* or 190.100.*.*.
- If you assign or change IP addresses or subnet masks for the rear port, you have to reset every affected DVB recaster and/or transrater service board.

## DVB I/O Boards

- To access the DVB I/O board's parameters, click the desired board's image.

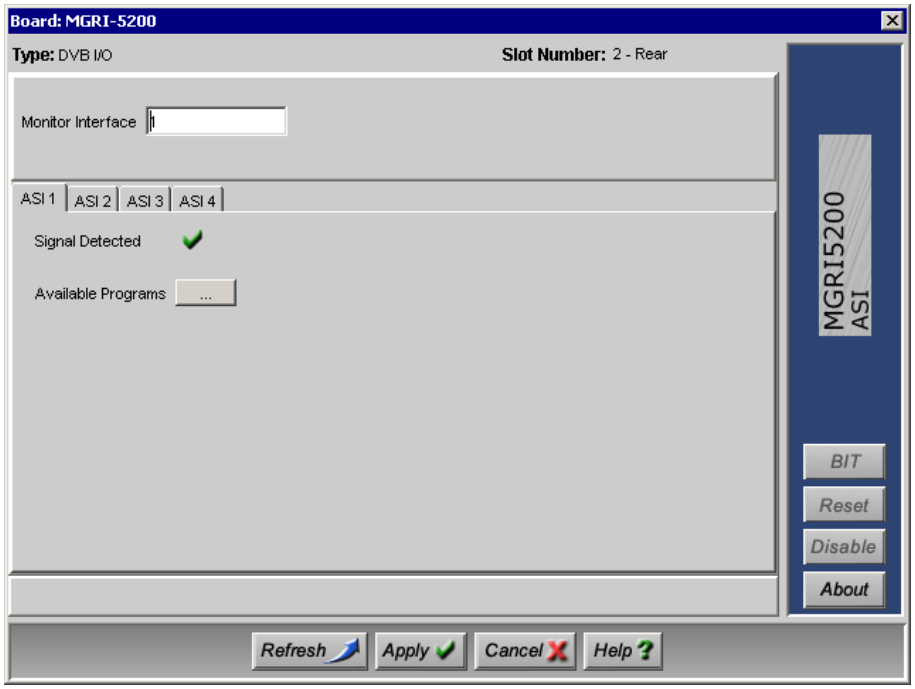



**Figure 29 .DVB I/O Board Parameters**

| Parameters | Description |
|---|---|
| Monitor Interface | Enter the DVB input that you wish to preview while recasting. |
| Signal Detected | = DVB-ASI compliant source detected.<br>= No source. |
| Available Programs | To view a list of available programs, click ... |

**Table 27: DVB I/O Board Parameters**

## DVB Transcoders

- DVB transcoders consist of the DVB Transcoder I/O and an encoder service board.
- To access DVB Transcoder I/O or encoder service board parameters, click the relevant board image.

**Figure 30 .DVB Transcoder I/O Board Parameters**

### Note

- If Video State under Transcoder 1 and Transcoder 2 display Play or Stop, you cannot add an additional channel associated with the respective DVB transcoder.
- DVB Transcoder I/O boards with one DVB-ASI input interface (ASI I/F) and a Loop connector are available and referred to as MGTI-5210.

## DVB Transcoder I/O Board Parameters

| ASI I/F 1 and 2 | Description |
|---|---|
| Programs View | To view a list of transmitting programs, click ... . |
| Input Detect | = DVB-ASI compliant input detected.<br>= No source. |
| Interface Status | **Not in Use:** A source might be connected, but no channel is configured.<br>**In Use:** Channel configured. |
| **Transcoder 1, 2** | **Description** |
| Video,<br>Audio 1 and 2 | **FREE:** Input available; a DVB transcoding channel can be added.<br>**STOP:** A DVB transcoding channel is added, but not transmitting.<br>**PLAY:** A DVB transcoding channel is added and playing. |
| Original Source | Lets you preview the original source of a certain program. For further information and instructions, refer to the next page. |

**Table 28: DVB Transcoder I/O Board Parameters**

### Previewing Sources for the Current Program

1. On the Transcoder I/O board Parameter page, under **Sources**, click **Details** Details; the Details window appears displaying source parameters associated with the currently active program.

2. Verify that monitors are connected to the relevant video and audio connectors. These monitors must have a Composite Video input and an Unbalanced Audio input respectively.
   **Transcoder 1** refers to **Video A** and **Audio A**.
   **Transcoder 2** refers to **Video B** and **Audio B**.

3. Click **Preview** Preview; the associated stream starts playing.

### Previewing Sources for a Different Program

1. On the Details window, click ...; a list of programs appears.

2. Select the desired program; the Program number appears under program and the parameters are updated.

3. Follow the instructions above.

## Encoder Service Boards

For Encoder Service Board parameters, refer to Encoders (on page 75).

# Creating and Editing a Channel Profile

The number of channels you can add depends on the type of boards and available input interfaces.

## Adding Channels

The number of channels you can add depends on the type of boards installed and available input interfaces. To add channels, use the Channel wizard, which guides you through the process. The Channel wizard consists of three steps:

1. **Defining a channel.** Use previous configurations that you saved as templates or manually configure a new channel. You can also back up existing (primary) channels.

2. **Choosing channel components.** Choose a service unit, an input interface and a target that support the channel you defined.

3. **Setting channel parameters.** Set Input, processing and target parameters.

MGW x100 supports the following channel types:

- Live Encoding H.264
- Live Encoding MPEG-1/2
- DVB to IP Recasting. For further details refer to DVB Recasting.
- DVB to IP Transrating. For further details refer to DVB Transrating.
- DVB to IP Transcoding. For further details refer to DVB Transcoding MPEG-1/2 or DVB Transcoding H.264.

## Defining a Channel

1. On the Main window, in the toolbar, click **Add Channels**

; the Channel wizard appears.

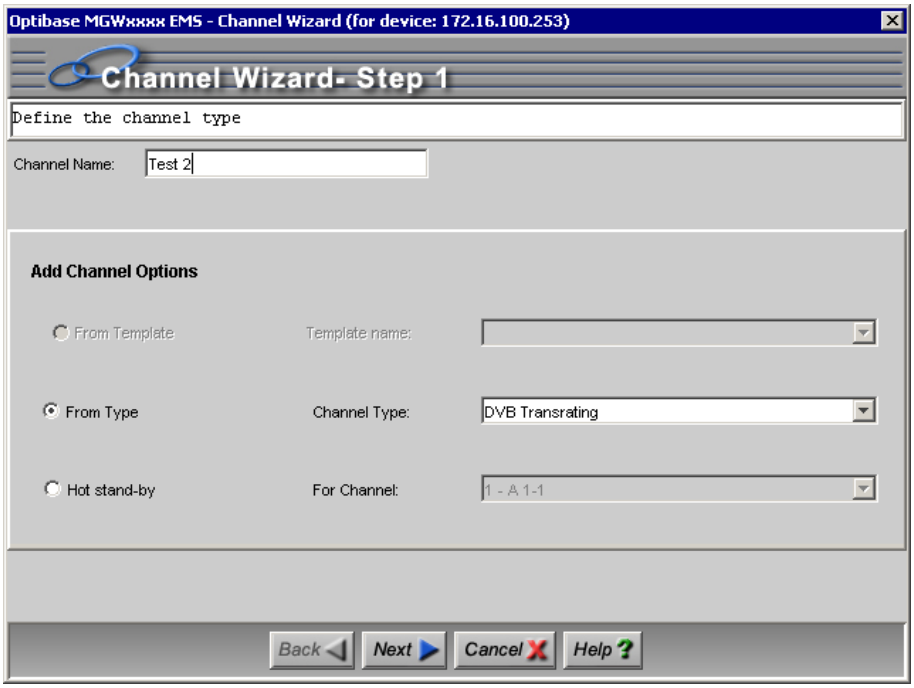



**Figure 31 :Adding a Channel - Step 1, Channel Options**

2. Select a channel name (e.g. **Test 2**) by overwriting the default in the Channel Name field to the upper left. Every channel must have a different name. Channel names may consist of up to 255 ASCII-English characters.

- If you try to use a name that has already been assigned to a different channel, you receive an error message.

- If you add a hot stand-by channel, the channel name appears with the extension **StandBy**. Do not change the hot stand-by channel's name.

1. Choose one of the three channel options listed below:

- **From Template.** Choose the desired template from the list.

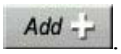
- **From Type.** Choose a channel type with default input and output parameters. Available channel types are listed in the previous page.

- **Hot Stand-by.** Choose the channel from the list that you wish to back up.

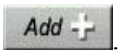
1. Click **Next** ; lists appear for the relevant input, processing and output components (targets). Input and processing components refer to available I/O and service boards.
   Make sure not to assign primary and hot stand-by channels to the same boards.

## Choosing Channel Components

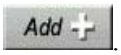
For Live Encoding:

- **Input Component.** Select an MPEG Encoder I/O board from the list. Only Encoder I/O boards with at least one available input interface appear.
- **Process Component.** Displays the service board that corresponds to the selected I/O board.
- **Output Component for H.264 and MPEG-1/2. MGW x100 supports up to 8 UDP targets per host controller unit for each encoded stream. To add a target, select the desired option and click Add**  .

For DVB Recasting:

- **Input Component.** Select a DVB I/O board from the list.
- **Output Component.** MGW x100 supports up to 8 UDP targets per filtered and/or converted IP stream. To add a target, select the desired option and click **Add**  .

For DVB Transrating:

- **Input Component.** Select a DVB I/O board from the list.
- **Process Component.** Displays the service board that corresponds to the selected I/O board.
- **Output Component.** MGW x100 supports up to 8 UDP targets per filtered and/or converted IP stream. To add a target, select the desired option and click **Add**  .

**Note**

- Make sure to keep at least one output component (target) assigned; otherwise you cannot complete the Channel wizard.
- You cannot add or remove targets once you quit the Channel wizard. If you wish to add or remove targets at a later stage, delete the relevant channel and add it again with the desired targets.
- Make sure to assign primary channels and hot stand-by channels to different boards.

- If you add a hot stand-by channel to a DVB transcoding or a live encoding channel, associated with an SDI source, connect the relevant source to a separate input interface and not to the primary channel's I/O board's Loop connector.

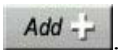
  Transcoder I/O boards are available with two DVB-ASI inputs or one DVB-ASI input and one Loop connector.

For DVB Transcoding:

- **Input Component.** Select a DVB I/O board from the list. DVB I/O boards only appear in the list if a DVB Transcoder channel can be added.

**Note**

If the DVB Trancoding H264 option does not appear in the Channel Type drop down list, ensure that the appropriate type was defined as described in Adding Channels (on page 90).

- **Process Component.** Displays the service board for re-encoding that corresponds to the selected I/O board.
- **Output Component** MGW x100 supports up to 8 UDP targets per host controller unit for each encoded stream. To add a target, select the desired option and click Add  .

## Setting Channel Parameters

- After setting input, processing and output components (targets), click **Next** ; channel parameters appear. Follow the instructions below to set or change channel parameters.

### If you added a Hot Stand-By Channel

- Do not change channel parameters or targets if you are adding a hot stand-by channel. Channel parameters and targets are synchronized with the associated primary channel's parameters and targets.

### SAP Service

By default the SAP check box is selected. To disable SAP service clear the check box.

### Input Parameters

- **Live Encoding.** On the Parameters page, click **IO Parameters** ; input parameters appear and can be set or changed.
- **DVB Recasting and DVB Transrating.** On the Parameters page, in the **IP Input I/F** section, under **Programs**, click ; programs received by the selected DVB-ASI Input interface are available and parameters can be set or changed.

- **DVB Transcoding.** On the Parameters page, in the **IP Input I/F** section, under **Program**, click ...; programs received by the selected DVB-ASI Input interface are available.

### Processing Parameters

- If you are adding an encoding or transcoding channel, set or change processing (encoding) parameters as required. For processing (encoding) parameters, refer to Encoding Parameters (on page 104).

### Target Parameters

- Select the relevant target and click **Edit** Edit; target parameters appear and can be set or changed.
- To add different targets, click **Back** Back and add the desired targets.

---

**Note**

You cannot add or remove targets once you quit the Channel wizard. To add or remove targets at a later stage, remove the relevant channel and add it again with the desired targets.

---

## Completing the Channel Wizard

- When finished, click **Apply** Apply; the Channel wizard closes and the channel appears in the list with the new parameters set.
- Hot stand-by channels appear below their primary channels as shown below.

| | | | |
|---|---|---|---|
| Optibase Chan... | Enc Source: Slot 3, I/F 1 | Playing | Channel OK |
| ↘ Optibase Ch... | Enc Source: Slot 13, I/F 1 | Stopped | Channel OK |

**Figure 32 .Channels with associated Hot Stand-by Channel**

## Saving the new Channel as a Template

- In the Channels list, select the new channel, click **Save** Save and assign a name to the respective template; the channel is saved and available as a template.

## Viewing Channels

### To view the Channels list:

- On the Main window, click the Channels tab; the Channels list appears.

### The Channels list displays the following details:

- **Channel Name.** Displays the channel name and provides indication of SAP status. you assigned when adding the channel.

  Three configuration options are available:

  - Sap is enabled in both channel and system.

  - Sap is enabled only for the channel.

  No SAP is configured for the channel.

- **Service.** Displays the channel type.
- **Program.** Displays the program number(not relevant to live channels).
- **V.PID** (Video PID).Displays the V.PID # (relevant only to transcoder channels).
- **Input.** Depending on the I/O board, it displays the input type.
- **Slot/IF.** Displays the slot number and the associated video input interface.
- **State.** Displays the channel state as listed below.

| State | Error Status | What it means |
|---|---|---|
| Stopped (orange) | Channel OK | The channel is ready. |
| Playing (green) | Channel OK | The channel is playing. |
| Stopped (orange) | Error | The channel encountered an error while playing, possibly caused by unsupported parameters that you may have set. The channel cannot restart until this error has been resolved. |
| Playing (green) | Error | The channel encountered an error, but continues playing. |
| Not Ready (red) | Error | The channel encountered an error, possibly caused by setting unsupported parameters. The channel cannot start until the error has been resolved. |
| Processing (purple) | N/A | The channel is being established. |

**Table 29: Channel States**

- **Target IP: Port.** Displays the channel's target IP address and its port.
- **Output IF.** Displays the output stream Interface name.
- **BW (Kbps).** Displays the bandwidth of the channel in Kbps.

### To save a channel as template:

- Select the desired channel and click **Save** ; the channel is saved and appears listed in the Template Manager.

### To delete a channel:

1. Stop the desired channel.
2. Select the desired channel and click **Del** ; the relevant channel is deleted.

### To toggle the order of channels displayed in the Channels list:

- By default, the channels appear in descending order with the last-added channel at the bottom.
- To sort the channels according to a certain channel detail (e.g. **Service**), click the header of the desired column; an arrow appears, and the channels are sorted as desired, in ascending order.
- To toggle the order, click ; the channels appear in descending order and the arrow toggles to .

### To sort the Channel Name and State columns:

- Click the **Channel Name** column header and select **By Name** or **By Sap.** The sort order changes accordingly.
- Click the **State** column header and select **By State** or **By Error.** The sort order changes accordingly.

### To view a channel error:

1. Select and right-click the desired channel.
2. From the shortcut menu, choose **Show Error**; the relevant error message appears

   *-Or -*

   Place the mouse cursor on the State field. A tool tip, indicating the error message, appears.

For a list of error messages and explanations, refer to the MGW EMS help.

## Editing Channels

### To view channel parameters without editing:

- Select the desired channel and click **View**

; channel parameters appear but are unavailable for editing.

### To edit channel parameters:

1. If the desired channel is in a Playing state, click **Stop**

;
2. Click **Edit**

; channel parameters appear.
3. Click the relevant tabs, set the desired parameters and click **Apply**

; the new parameters are set.

### If you want to save the channel as a template:

- In the Channels list, select the new channel, click **Save**

and assign a name to the respective template; the channel is saved and available as a template.

### To adjust parameters on the fly (while playing the channel):

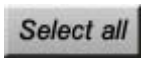
- Only encoding or transcoding channels can be edited on the fly.
- Select the desired channel and click **Edit**

; The relevant parameters are displayed. Make sure to adjust in small steps.

## Removing Channels

- Make sure that the relevant channels are stopped.
- Select the relevant channels and click **Delete**

; the selected channels are removed. Templates based on the relevant channels remain available.

  To remove all channels, click **Select All** 

and then **Delete**

; all channels are removed.

---

**Note**

---

Template names may consist of max. 255 ASCII-English characters.

## Managing Templates

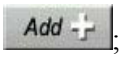
To add a template to the list, you must have at least one channel in the Channels list (d:\program files\optibase\mgw5100ems\help\adding_a_channel.htm). You can add a template either by using the Template manager or from the Channels list.

### To open the Template manager and view existing templates:

- On the toolbar, click **Templates**

; the Template manager appears displaying existing templates.

### To add a template by using the Template manager:

1. On the Template manager, click **Add** 

; a window appears displaying existing channels.

2. Select the desired channel and click **Apply**

; the template is added to the list.

### To add a template from the Channels list:

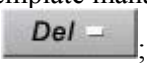
1. On the Channels list, select the desired channel and click Save

; you will be asked to assign a name and add a short description (optional).

2. Assign a name and add a description and click **Apply**

; the template is added to the list.

### To delete a template:

- On the Template manager, select the template you want to delete and click **Del** 

; the selected template is deleted.

## Managing Configurations

MGW x100 lets you save up to 10 system configurations (including the "Current" configuration) per unit allowing you to restore settings for channels and boards saved in previous sessions. Configurations can be applied to the unit to which you were logged on when you saved them.

If you have a second host controller and switch installed as a backup, you have to save your latest configuration to enable a smooth switch over in case of problems.

To preserve more than 10 system configurations or to make them available for other MGW x100 units, you can download them to your Management PC and upload them to different MGW x100 units.

### "Current" (Autosaved) Configuration:

The "Current" configuration is automatically created by the system and cannot be deleted. It contains the most current channel configuration and is automatically saved 15 seconds after the last channel parameters change.

The "Current" configuration can be used as "Autostart" configuration.

---

**Note**

It is recommended to manually save immediately after a change of channel parameters has been done.

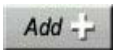
---

### To view a list of previously saved configurations:

- On the Main window, in the toolbar, click **Configs**

; the Device Configuration Manager appears displaying a list of currently saved configurations.

### To save a new configuration:

- Click **Add** 

and add the file name and a short description for the desired configuration and then click **OK**

; the configuration is saved and appears in the Available Device Configurations list.

### To update a configuration with the current profile:

- In the Available Device Configurations list, select the desired configuration and click **Save**

; the selected configuration has been updated with the current profile.

### To activate a configuration:

- Select the desired configuration and click **Activate**

; the Activate Configuration window appears and the selected configuration is loaded, which can take several minutes.

- To close the Loading Configuration window, click **Close**

; the Loading Configuration window closes and the configuration continues loading.

- To stop loading the configuration, click **Abort**

in the Loading Configuration window; the Loading Configuration window closes and the configuration stops loading.

**Note**

- If the Loading Configuration window was closed, double click the Loading Configuration process bar at the bottom of the main window to re-open the Loading configuration window
- Do not use configurations associated with any other MGW unit such as MGW 1100.

### To automatically activate a configuration:

- Select the desired configuration and click **Auto Start**

; the Auto Start button changes to

and the configuration is activated after restarting MGW x100. Channels that were running while the configuration was being saved restart after the configuration has reloaded.

- When restarting, the Auto Start window appears. To close this window or stop loading the configuration, click Close (javascript:void(0);)

or **Abort**

respectively.

- Only one configuration can be activated automatically at a time. Setting another configuration to be automatically activated disables automatic activation for the previous configuration.

### To disable automatic activation of the configuration:

- Select the relevant configuration and click **Auto Start**

; the Auto Start button changes to

and the selected configuration will not be automatically activated after restarting MGW x100.

### To delete a configuration:

- Select the desired configuration from the list and click **Del**

; the selected configuration is deleted from the Available Device Configurations list.

### To update the list of configurations:

- Click **Refresh**

; the Configuration list is updated.

### Disk Properties:

- This list displays the available disk space on MGW x100's flash disk.

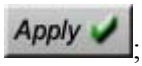
## Adapting Configurations to different Units

To create backup units, configurations and/or password and network settings can be made available to other MGW x100 units. To do so, you have to download the relevant configuration and/or settings to your PC and then upload them to the desired MGW x100 unit.

### To download a configuration and/or settings to your PC:

1. From the menu, choose **Tools** and then **Host Config Files**; you are asked to choose whether you want to upload or download configuration files.

2. Choose **Download from MGW**, the Download Files window appears.

- To download a configuration, select **Configuration Maps** and click **Apply** 

; the relevant files are downloaded to a new folder called **hostCfgMaps** and made available in a zip archive called **CfgMaps_<IP address of the relevant MGW unit>.zip**.

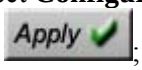
- To upload password and network settings, select System Settings and click **Apply**

; the relevant files are downloaded to a new folder called hostPersist and made available in a zip archive called **Persist_<IP address of the relevant MGW unit>.zip**.

### To upload a configuration and/or settings to a different unit:

1. From the menu, choose **Tools** and then **Host Config Files**; you are asked to choose whether you want to upload or download configuration files.

2. Choose **Upload to MGW**; the Upload Files window appears.

3. Depending on whether you want to upload a configuration or system settings, select **Configuration Maps** or **System Settings** respectively and click **Apply** 

; the relevant folder (hostCfgMaps or hostPersist) appears with previously downloaded zip archives containing configuration files or system settings respectively.

4. Select the desired zip archives associated with configurations or system settings that reflect the IP address associated with the unit from which you previously downloaded it.

**Note**

- The hostCfgMaps and hostPersist folders reside in the MGW EMS program folder. Do not move or rename these folders and their content.
- If you load a configuration from a different unit, this unit and the target unit must have the same hardware profile and both hosts must be equipped with the same software version.
- If you import network settings and passwords, network interfaces must be identical in the relevant slots and connected to the same network segments. When logging on the next time to the relevant unit the, you have to use the user credentials associated with the system settings you uploaded.

# Live Encoding Parameters

## Input Parameters

### To access video input parameters:

- If you are in the process of adding a channel, click **IO Parameters** I/O Parameters; input parameters appear.
- If you are in the process of editing a channel, click the Live I/O tab and then **IO Parameters** I/O Parameters; input parameters appear.
- For input parameters .Encoder I/O Boards (on page 78).

## Encoding Parameters

This section lists and explains encoding (processing) parameters for MPEG and H.264 streams.

### To view output modes and settings:

1. On the Main window, on the Chassis page, click the relevant front board image; output options appear.

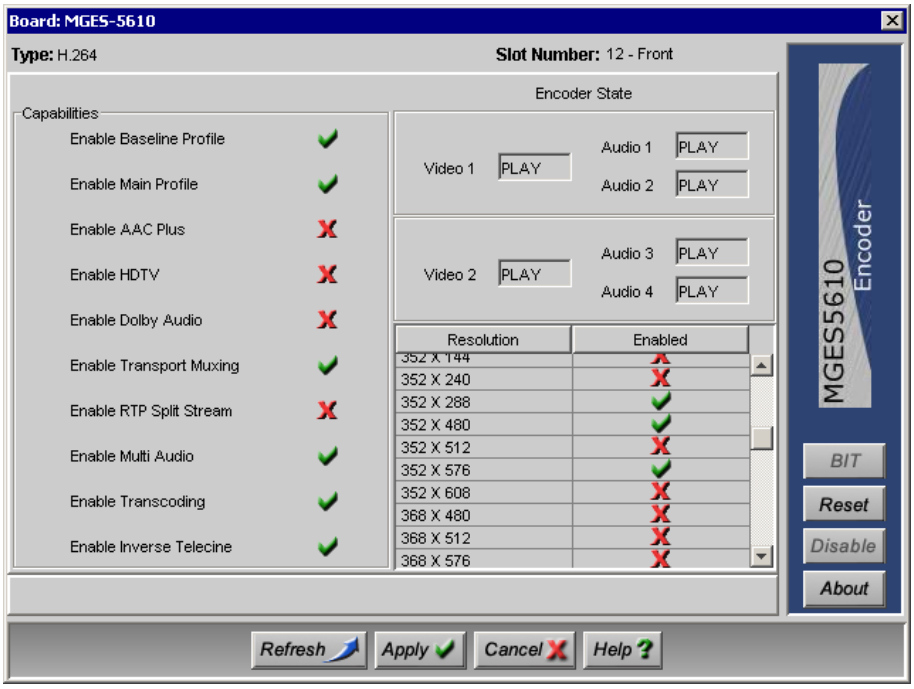



**Figure 33 .H.264 Encoder Service Board Parameters**

2. Under **Resolutions**, verify that the desired resolutions are enabled. Enabled resolutions are marked ✔.

## Board Parameter Tools

- The Board Parameter tools let you perform the tasks listed below. Depending on the board, some of these tools may be unavailable.

| Tools | Description |
|---|---|
| Refresh | Updates the displayed parameters. |
| Apply | Applies changes that you have made. This button is disabled if you are logged on as **Guest**. |
| Cancel | Closes the current window. |
| BIT | Starts the built-in online test. This option is not available at present. |
| Reset | Resets service boards; channels associated with the relevant service boards will be removed.<br><br>This option is not available for the host controller units and the switch and if you are logged on as **Guest**. |
| Disable | This button is unavailable if no redundant host controller and switch are installed. |
| About | Displays this board's details, which are explained in the table below. |

- The table below lists and explains the board's details displayed upon clicking **About** About.

| Properties | Description |
|---|---|
| ID | Internal Board ID. |
| Name | Board's name. |
| HW Revision | Board's version. |
| Serial Number | You might be required to submit this number when calling for technical support regarding the relevant board. |
| Software Version | Refers to the board's internal software; you might be required to submit the software version when calling for technical support regarding the relevant board. |
| Premium | ✔ = All relevant features are enabled.<br>✘ = Depending on the board in use, certain features are disabled. |
| **Status** | Description |
| Status | Active or Idle. |
| Status FCode | Error message associated with a possible hardware error, if relevant. |

Related Topics

- Host Controller Board Parameters
- H.264 Encoder Board parameters
- MPEG Encoder Board Parameters
- DVB Transcoder Board Parameters
- DVB Recaster and DVB Transrater Board Parameters

## H.264 Encoding Parameters

You can adjust basic and advanced video and audio parameters as explained below.

### Video Encoding Parameters

- To change and save advanced video encoding parameters, click **Apply** .
- To close the Advanced Encoding parameter window without making changes, click **Cancel** .

| Parameters | Settings | Comments |
|---|---|---|
| Video I/F | 1, 2 | Displays the video interface in use. This field shows if you encode live input. |
| Encoding Format | H264@BL | H.264 compliant stream (Baseline Profile). |
| | H264@MP | H.264 compliant stream (Main Profile).<br>This option is available if **Enable Main Profile** is enabled on the Encoder Service Board parameters. |
| Video Bit-Rate (in Kbps) | 50 - 2500 | |
| Total Bit-Rate | For supported audio bit-rates, refer to .Advanced Audio Encoding Parameters (on page 115) | Total bit-rate of video and audio per encoded stream. |
| Resolution | Available resolutions can be found on the Encoder Service Board Parameter page and in the system spec. | Make sure that your receiving device and monitor support the resolution you choose. |
| Secondary Stream | Select the check box to enable. | This feature (applicable only in H.264) enables you to stream a secondary channel from the same source used for the primary channel. Refer to Secondary Stream Video Parameters (on page 112) for configuration details. |

**Table 30: Video Encoding Parameters**

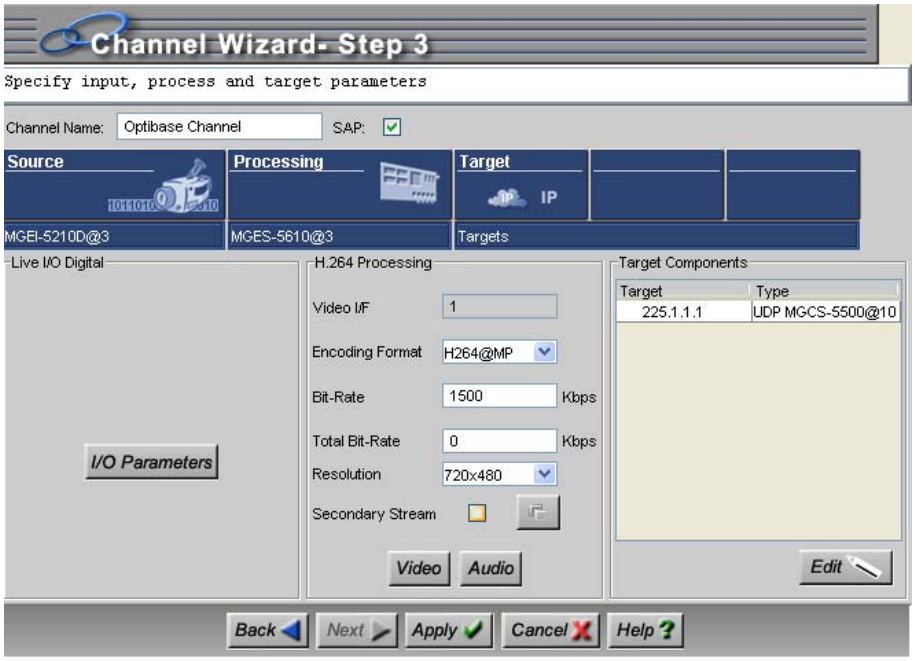
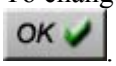
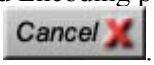



**Figure 34 .H.264 Processing Parameters**

## Advanced Video Encoding Parameters

- If you are in the process of adding a channel, click Video to view advanced video encoding parameters.
- If you are in the process of editing a channel, click Advanced to view advanced video encoding parameters.
- To change and save advanced video encoding parameters, click OK  .

- To close the Advanced Encoding parameter window without making changes, click Cancel 

.

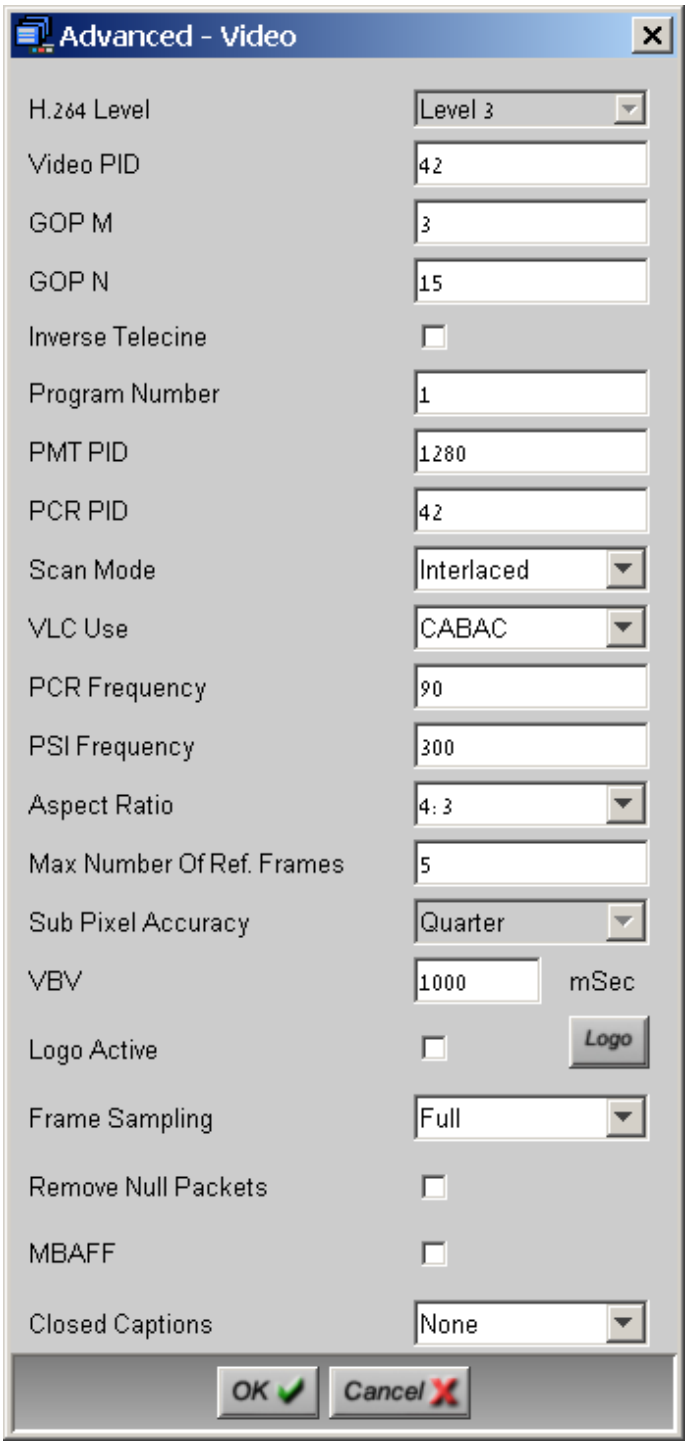



**Figure 35 :Advanced - Video window**

| Parameter | Settings | Comments |
|---|---|---|
| H.264 Level | Level 3 | Not available for editing |
| Video PID | 32 - 8190 | A unique ID for video streams in multiplexed Transport streams only. It identifies Transport packets carrying data of the particular video stream.<br>Enter a unique number for each stream. For an automatically assigned ID, choose 0.<br>To automatically recognize the video PID in a video program that you are transcoding, check the associated checkbox; the Video PID field displays NO CHANGE. |
| GOP M | 1-3<br>The default value is 3 | Specifies the distance between consecutive reference frames (I or P frames) in the stream. It also reflects the number of consecutive B frames plus one. |
| GOP N | 1 - 120<br>(the default is 15) | The maximum distance in frames between consecutive I (intra) frames in the stream. N must be a multiple of M. It is recommended to encode about two I frames per second.<br>To automatically recognize the value for GOP N in a video program that you are transcoding, check the associated checkbox; the GOP N field displays NO CHANGE. |
| Program Number | 0 - 8191<br>(the default is 1) | Specifies the program to which the Program Map PID applies. |
| PMT PID | 0 - 8190<br>(the default is 1280) | Specifies the PID of the Transport stream program, containing the Programs Map. |
| PCR PID | 0 - 8191<br>(the default is 42) | Specifies the PID of the program clock reference package. |

| Parameter | Settings | Comments |
|---|---|---|
| Scan Mode | • Interlaced (default);<br>• Progressive;<br>• PAFF | • In Interlaced mode, every frame is divided into two fields, i.e. even and odd lines. Each field is encoded separately.<br>• In Progressive mode, the entire frame is encoded.<br>• In PAFF (Picture-adaptive frame-field coding) mode, each frame is encoded by either Interlaced or Progressive mode. |
| VLC Use | CABAC (default)<br>CAVLC | |
| PCR Frequency | 20 - 100<br>(the default is 90) | Sets the frequency (in ms) at which the program clock reference is inserted in the mux header. |
| PSI Frequency | 40 - 10000<br>(the default is 300) | Sets the frequency (in ms) at which mux headers are inserted. |
| Aspect Ratio | 4:3 (default)<br>16:9 | Sets the width/height ratio of a TV set or movie screen. Most TV sets have a 4:3 aspect ratio. Wide screen TV sets have a 16:9 aspect ratio.<br>For DVB Transcoding, choose the aspect ratio of the incoming program. |
| Max. Number of Ref. Frames | 1 - 5<br>(the default is 5) | Defines the max. number of reference frames. |
| Sub Pixel Accuracy | Quarter (default) | This field is not available for editing.<br>'Smoothes' the outline of objects by turning pixels 'on' or 'off' in the vicinity of the outline. You can choose between three different 'smoothing levels'. |
| VBV Buffer | 400-2000 | The Video Buffer Verifier (VBV) is a model hypothetical decoder buffer that will not overflow or underflow when fed a conforming MPEG bit stream |
| Logo Active | To enable this option, check the associated checkbox. | Refer to Logo Insertion (on page 117) for more details. |
| Frame Sampling | Full, Half, Third, Quarter, Fifth, Sixth<br>(the default is Full) | Applies only for low bit rate for frame dilution. |
| Remove Null Packets | To enable this option, check the associated checkbox. | Mostly beneficial in low video bitrates. |
| MBAFF (Macroblock-adaptive frame-field) | To enable this option, check the associated checkbox. | Used to encode each macroblock in **Interlaced** or **Progressive** mode. This feature is available only when scan mode is **Interlaced**. |

| Parameter | Settings | Comments |
|---|---|---|
| Closed Captions Pass Through | To enable this option, check the associated checkbox. | If enabled, closed captions are transmitted as selected for the original source. Available in NTSC only. |

**Table 31: Advanced Video Encoding Parameters**

## Secondary Stream Video Parameters

This feature enables you to stream a secondary channel from the same source that is used for the primary channel. Encoding and output target parameters of the two channels (primary and secondary) are configured separately.

### To configure a secondary stream:

1. Ensure that the **Secondary Stream** check box is selected.

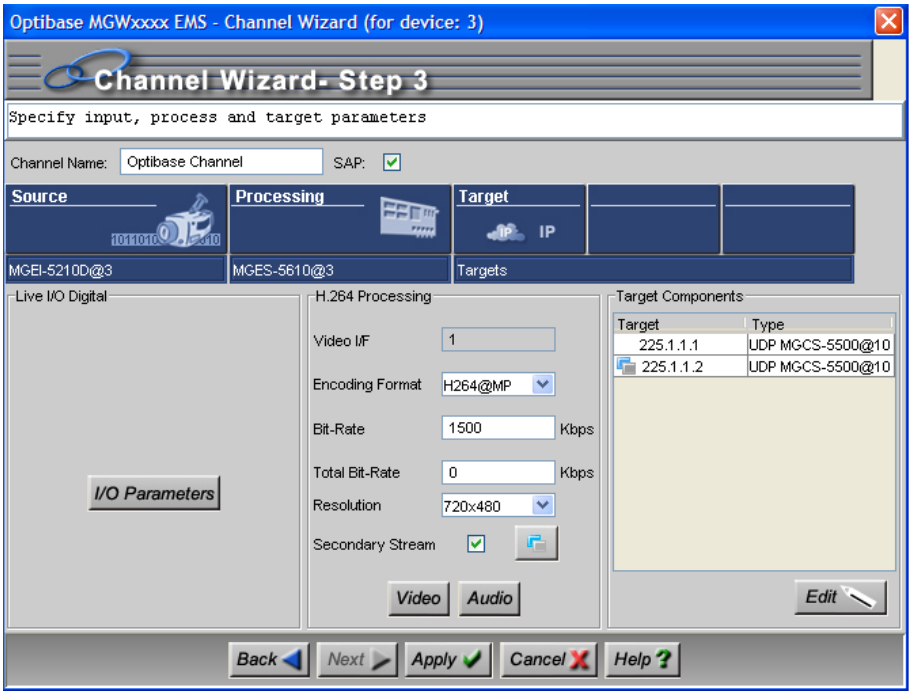



**Figure 36 .Channel Wizard - Step 3 window**

2. Click . The **Secondary Stream** window appears.

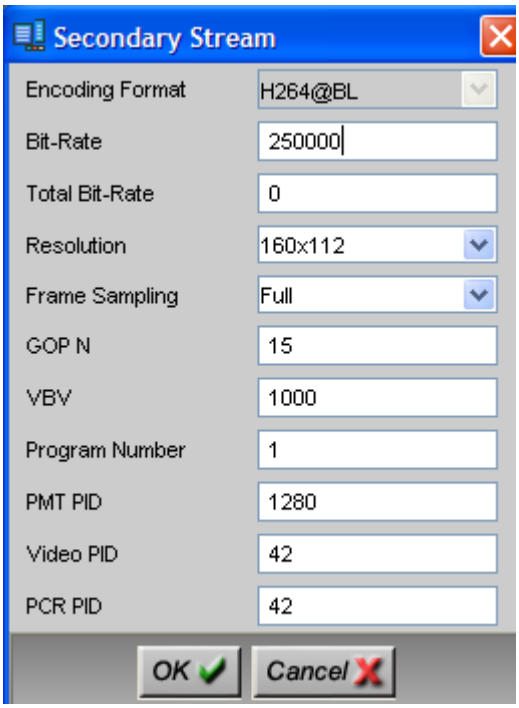



**Figure 37 .Secondary Stream window**

3. Configure the secondary stream parameters as required and click **OK**.

| Parameter | Settings | Comments |
|---|---|---|
| Encoding Format | H264@BL | H.264 compliant stream (Baseline Profile). |
| Bit-Rate (in Kbps) | 50 - 500 | |
| Total Bit-Rate | For supported audio bit-rates, refer to .Advanced Audio Encoding Parameters (on page 115) | Total bit-rate of video and audio per encoded stream. |
| Resolution | Available resolutions can be found on the Encoder Service Board Parameter page and in the system spec. | Make sure that your receiving device and monitor support the resolution you choose. |
| Frame Sampling | Full, Half, Third, Quarter, Fifth, Sixth<br>(the default is Full) | Applies only for low bit rate for frame dilution. |

| Parameter | Settings | Comments |
|---|---|---|
| GOP N | 1 - 120<br>(the default is 12) | The maximum distance in frames between consecutive I (intra) frames in the stream. N must be a multiple of M. It is recommended to encode about two I frames per second.<br>To automatically recognize the value for GOP N in a video program that you are transcoding, check the associated checkbox; the GOP N field displays NO CHANGE. |
| VBV | 400-2000 | The Video Buffer Verifier (VBV) is a model hypothetical decoder buffer that will not overflow or underflow when fed a conforming MPEG bit stream |
| Program Number | 0 - 8191<br>(the default is 1) | Specifies the program to which the Program Map PID applies. |
| PMT PID | 0 - 8190<br>(the default is 1280) | Specifies the PID of the Transport stream program, containing the Programs Map. |
| Video PID | 32 - 8190 | A unique ID for video streams in multiplexed Transport streams only. It identifies Transport packets carrying data of the particular video stream.<br>Enter a unique number for each stream. For an automatically assigned ID, choose 0.<br>To automatically recognize the video PID in a video program that you are transcoding, check the associated checkbox; the Video PID field displays NO CHANGE. |
| PCR PID | 0 - 8191<br>(the default is 42) | Specifies the PID of the program clock reference package. |

**Table 32: Secondary Stream Parameters**

## Audio Encoding Parameters

- If you are in the process of adding a channel, click **Audio**

to view audio encoding parameters.

- If you are in the process of editing a channel, click the Processing tab and then the Audio tab.

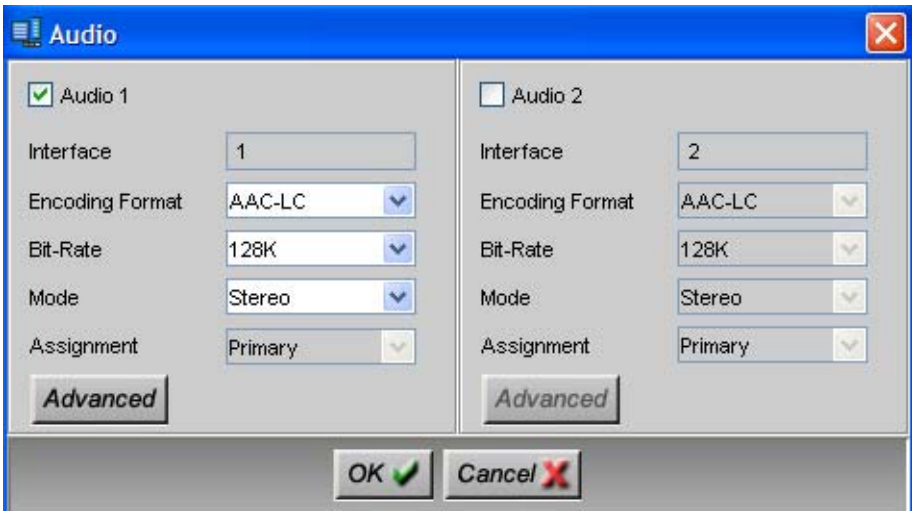



**Figure 38 :Audio window**

| Parameter | Settings | Comments |
|---|---|---|
| Interface | 1, 2, 3, 4 | Displays the audio interface in use. This field shows if you encode live input. |
| Encoding Format | AAC-LC (default)<br>AAC+ | Refers to AAC (Advanced Audio Coding), an MPEG audio encoding standard. |
| | MPEG-1 Layer 2 | Defined by MPEG-1 Layer 2 Properties. |
| Bit Rate (bps) | 16000 - 320000 | Available bit-rates are listed in the system spec and depend on the channel mode. |
| Mode | Mono, Stereo, Dual Mono,<br>Joint stereo, Duplicate (Left/Right), | Mono is available for MPEG-1 Layer 2. |

**Table 33: Audio Encoding Parameters**

## Advanced Audio Encoding Parameters

- To view and set advanced audio processing parameters, click **Advanced** Advanced; additional audio processing parameters appear.

| Parameter | Settings | Comments |
|---|---|---|
| ABV (Audio Buffer) | 0-200 MPEG 1 Layer 2<br>0-100 AAC-LC<br>0 is the default value | The audio Buffers function is to maintain audio bit rate stability. |

| Parameter | Settings | Comments |
|---|---|---|
| Audio PID | 32-8190<br>-1 automatically recognize the audio PID in a audio program that you are transcoding,<br>0 assigns a default value | A unique ID for audio streams in multiplexed Transport streams only. It identifies Transport packets carrying data of the particular audio stream.<br>The check box performs the same function as setting the value to -1 displays NO CHANGE. |
| Gain | 0 - 16 (default is 8) | Lets you amplify the analog audio signal before or during encoding.<br>The Gain is set in 3dB steps. |

**Table 34: Advanced Audio Encoding Parameters**

### To view and set parameters while playing the channel (on the fly):

- select the desired channel and click **Edit**

; the relevant parameters appear for editing as listed below.

## Secondary Stream Audio Parameters

### To set audio parameters for a secondary channel:

1. In the H.264 Processing section click **Audio.** The **Audio window appears**

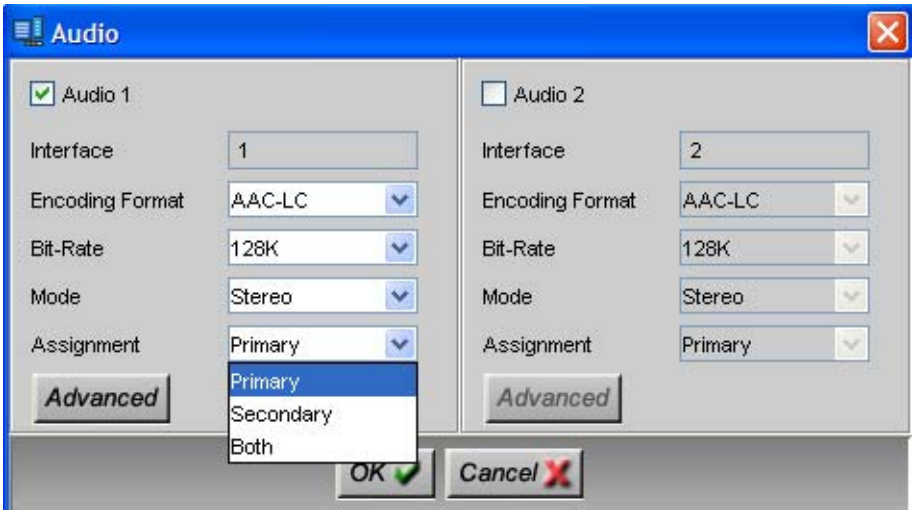



**Figure 39 .Audio window**

2. Select the AAC-LC encoding format.

3.

**Note**

To allow secondary stream audio configuration you must select the AAC-LC encoding option.

4. Set the secondary stream by selecting one of the following options from the **Assignment** drop-down list:

| Description | Audio 1 Assignment | Audio 2 Assignment | Encoding Format |
|---|---|---|---|
| One audio channel is assigned to the primary channel and the other to the secondary. | Primary | Secondary | AAC-LC |
| One audio channel is assigned to the primary channel and the other is assigned to both primary and secondary channels. | Primary | Both | AAC-LC |
| One audio channel is assigned to both primary and secondary channels and the other is assigned to the primary channel. | Both | Primary | AAC-LC |
| Both audio channel are assigned to the primary channel. The secondary channel will not have audio. | Primary | Primary | AAC+<br>MPEG-1 Layer 2<br>AAC-LC |

## Logo Insertion

Logo insertion is available only in logo insertion enabled versions. The Logo Image Manager allows you to load image files to be used as logos on your transmitted channels.

Files that are inserted as logos must meet the following requirements:

- Max logo size is 100x100 pixels.
- The file format is TGA.
- The files should be in 32 bits/pixel resolution.
- The file should have a transparency level.

**Logo insertion is only available in channels that are in H.264 encoding format.**

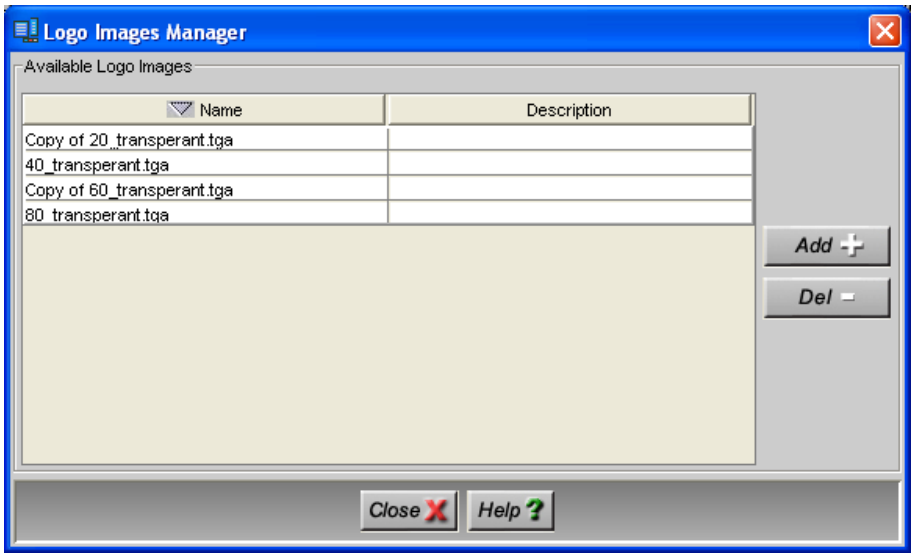



**Figure 40 .Logo Images Manager window**

## To edit the Logo Manager:

- Select **Logo Images** from the Configurations menu, the Loge Images Manger screen will open
- To add a logo image click on the **Add** button and select an image file from the browse window.
- To remove a logo file select it from the list and click on the **Del** button

After creating a logo list, the logos can be inserted into the transmitting channels.

## To set up the logo insertion into the channel:

- Select the channel from the Channels tab.
- In the Video tab click on the **Advanced** button.

- Click on the **Logo** button.

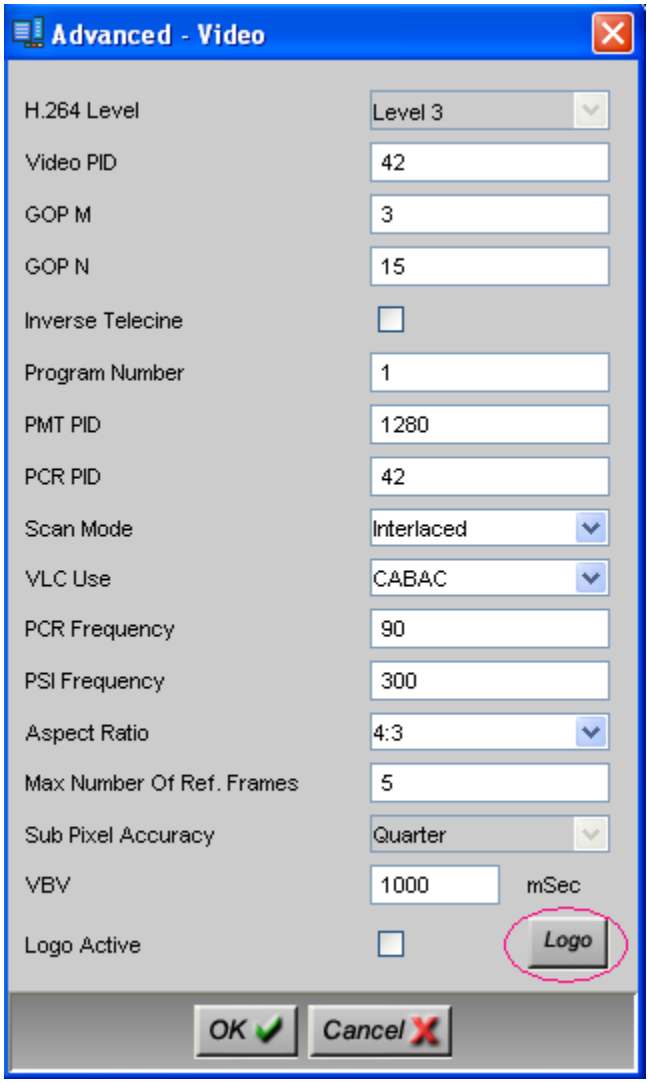



**Figure 41 .Advanced - Video window**

- Select the image file to be used as a logo by pressing the browse button and selecting an image file from the logo list.

- Select the position in which the logo will be inserted, either by selecting from the defined default position or by specifying a manual position by using the x and y coordinates.

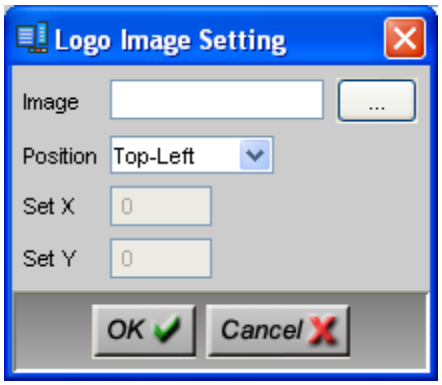



**Figure 42 .Logo Image Setting window**

- Click on the **Ok** button.

### To activate the logo insertion:

- Check the **Logo Active** check box.

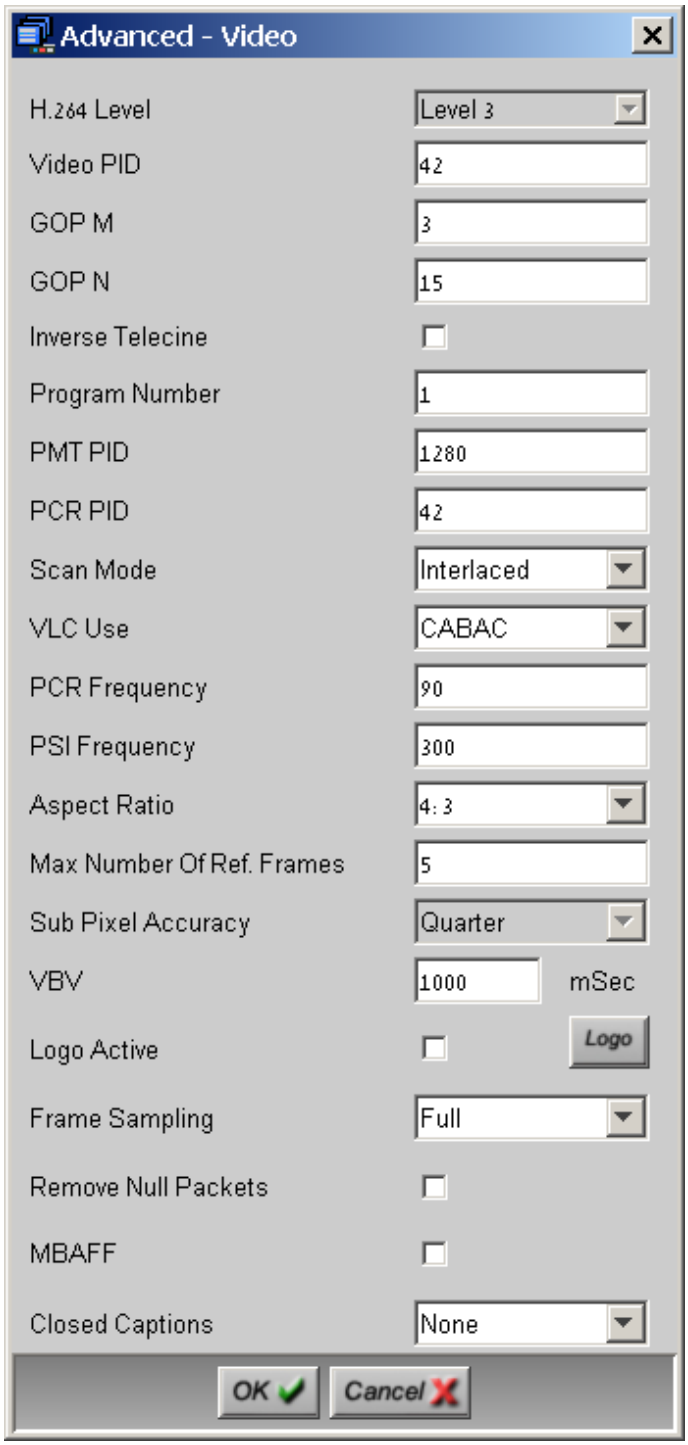



**Figure 43 :Advanced - Video window**

- Click on the **Ok** button.

- Click on the **Apply** button.

### Adjusting Parameters While Playing a Channel

- To view and set parameters while playing the channel (on the fly), select the desired channel and click **Edit**

; parameters appear for editing as listed below.

| Audio 1 and 2 | Settings | Comments |
|---|---|---|
| SAP | Select or clear the check box. | To fully implement SAP service refer to SAP Service (on page 93). |
| Gain | 0 - 16 (default is 8) | Lets you amplify the analog audio signal before or during encoding. |

**Table 35: Parameters available on the Fly**

**Table *36* :**

## MPEG Encoding Parameters

You can adjust basic and advanced video and audio parameters as explained below.

### Video Encoding Parameters

- To change and save advanced video encoding parameters, click **Apply**

.
- To close the Advanced Encoding parameter window without making changes, click **Cancel**

.

| Parameters | Settings | Comments |
|---|---|---|
| Video I/F | 1, 2 | Displays the video interface in use. This field shows if you encode live input. |
| Encoding Format | MPG1 | MPEG-1 compliant stream. |
| | MPG2 MP@ML | MPEG-2 compliant stream. |
| | MPG2 SP@ML | MPEG-2 compliant stream transmitting at reduced latency using the low latency optimized microcode.<br>This option is available if **MPEG-2 SP@ML** appears enabled ✔ on the Encoder Service Board parameters page. |
| Video Bit-Rate (in Kbps) | 180 - 5000 (MPEG-1)<br>1500 - 10000 (MPEG-2)<br>(the default is 4000) | You can encode at bit-rates of up to 15000 Kbps if **15M** appears enabled ✔ on the MPEG Encoder Service Board parameters page. |
| Total Bit-Rate | For supported audio bit-rates, refer to Advanced Audio Encoding Parameters (on page | Total bit-rate of video and audio per encoded stream. |

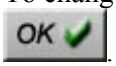
| Parameters | Settings | Comments |
|---|---|---|
| Video I/F | 1, 2<br><br>126). | Displays the video interface in use. This field shows if you encode live input. |
| Resolution | Available resolutions can be found on the Encoder Service Board Parameter page and in the system spec. | Make sure that the receiving device and monitor support the resolution you choose. |
| Mux Format | System | MPEG-1 compliant multiplexed streams |
| | Program | MPEG-2 compliant multiplexed streams |
| | Transport | MPEG-2 compliant streams that contain transmission data such as error correction for noisy channels, encryption and high speed network protocols. |

**Table 37: Video Encoding Parameters**

## Advanced Video Encoding Parameters

- If you are in the process of adding a channel, click **Video**

to view advanced video encoding parameters.
- If you are in the process of editing a channel, click **Advanced**

to view advanced video encoding parameters.
- To change and save advanced video encoding parameters, click **OK** 

.
- To close the Advanced Encoding parameter window without making changes, click **Cancel**

.

| Parameter | Settings | Comments |
|---|---|---|
| Max Bit-Rate (Kbps) | Either 10000 or 15000 | Define the upper limit for which adjusting the video bit-rate on the fly is enabled.<br>This option depends on the specifications of the encoding board installed in your<br>system. |
| Elementary Stream ID | 224 - 239 | Elementary Stream ID; a unique ID for a video stream inside multiplexed System, Program or Transport streams. They identify the PES packet headers and their |

| Parameter | Settings | Comments |
|---|---|---|
| | | payload-containing data for the particular video stream inside multiplexed Program and Transport streams, as well as packet headers inside multiplexed System streams.<br><br>Enter a unique number for each stream. For an automatically assigned ID, choose 0. |
| Video PID | 0 - 8191 | A unique ID for video streams in multiplexed Transport streams only. It identifies Transport packets carrying data of the particular video stream.<br><br>Enter a unique number for each stream. For an automatically assigned Program ID, choose 0. |
| GOP M | 1 - 3<br>(the default is 3) | Specifies the distance between consecutive reference frames (I or P frames) in the stream. It is also the number of consecutive B frames plus one. |
| GOP N | 1 - 100<br>(the default is 15) | The maximum distance in frames between consecutive I (intra) frames in the stream. N must be a multiple of M.<br>It is recommended to encode about two I frames per second. |
| Force Close GOP | To enable this option, check the associated check box. | If enabled, only closed groups of pictures (GOPs) are sent to the decoder. |
| Closed Captions Pass Through | To enable this option, check the associated checkbox. | Applies to DVB transcoding channels.<br><br>If enabled, closed captions are transmitted as selected for the original source. |
| Program No. | 0 - 8191<br>(the default is 1) | Specifies the program to which the Program Map PID applies. |
| PMT PID | 0 - 8191<br>(the default is 1280) | Specifies the PID of the Transport stream program, containing the Programs Map. |
| Transport ID | 0 - 8191<br>(the default is 1) | Specifies the ID of your transport stream. |
| Aspect Ratio | 16:9<br>4:3 (default)<br><br>1:1<br><br>2.21:1 | Applies to MPEG encoding channels.<br><br>Sets the width/height ratio of a TV set or movie screen. Most TV sets have a 4:3 aspect ratio. Wide screen TV sets have a 16:9 aspect ratio. |
| Closed Captions | None (default)<br>CCube 1<br>CCube 2<br>ATSC<br>SCTE | This option applies to MPEG encoding channels and does not appear for DVB transcoding channels.<br><br>CCube 1. Captioning in display order<br><br>CCube 2. Captioning in encode order<br><br>ATSC. Advanced Televisions Committee<br><br>SCTE. Society of Cable Communication Engineers.<br><br>Verify that the receiver in use supports the respective Closed Caption format. |
| External Clock | If checked, the encoder's clock synchronizes with the | If cleared, the time is obtained from the encoder service board. |

| Parameter | Settings | Comments |
|---|---|---|
| | network time. | |
| Scene Detection | If checked, Scene Detection is active. | An I frame is inserted at scene changes, thus improving the encoding quality.<br>Do not change this setting unless you have been instructed to do so. |
| Frame per Packet | If checked, Frame per Packet is active. | Defines the alignment of the MPEG payload (one frame) within the Transport packets. If you check Frame Per Packet, PES Packet Size is set to Unlimited and becomes unavailable for editing. |
| PES Packet Size | 512 - 65535<br>8192 (default) | To define the size of the MPEG payload's video portion within the Transport packets, specify a packet size. Frames that are bigger than the specified PES size will be split.<br>To envelop each frame in a different PES with the PES size depending on the frame size, choose Unlimited. |
| Teletext Pass Through | If checked, teletext will be transmitted with the encoded content. | Applies to DVB transcoding channels. |

**Table 38: Advanced Video Encoding Parameters**

## Audio Encoding Parameters

- If you are in the process of adding a channel, click **Audio** to view audio encoding parameters.
- If you are in the process of editing a channel, click the Processing tab and then the Audio tab.

| Parameter | Settings | Comments |
|---|---|---|
| Interface | 1, 2, 3, 4 | Displays the audio input in use. |
| Encoding Format | MPEG-1 Layer 2 | Defined by MPEG-1 Layer 2 Properties. |
| | Dolby® | Dolby® is optional and may not be available for the associated encoder. |
| Bit Rate (bps) | 64000 - 384000 | Available bit-rates depend on the encoding format and the channel mode.<br>For a list of available bit-rates for the chosen audio mode, refer to the system spec. |
| Mode | Mono | Mono is not available for Dolby® encoding. |
| | Stereo | |

**Table 39: Audio Encoding Parameters**

### Advanced Audio Encoding Parameters

- To view and set advanced audio processing parameters, click **Advanced**

; additional audio processing parameters appear.

| Parameter | Settings | Comments |
|---|---|---|
| ESID | 192 - 223 | A unique ID for an audio stream inside multiplexed System, Program or Transport streams. They identify the PES Packet headers and their payload-containing data for the particular audio stream inside multiplexed Program and Transport streams, as well as Packet Headers inside multiplexed System streams.<br>Enter a unique number for each stream. For an automatically assigned ESID, choose **0**. |
| Audio PID | 0 - 8191 | A unique ID for audio streams in multiplexed Transport streams only. It identifies Transport packets carrying data of the particular audio stream.<br>Enter a unique number for each stream. For an automatically assigned Program ID, choose **0**. |
| Media Processor | 1, 2, 3, 4 | Displays the audio encoding processor in use.<br>This field is not available for editing |
| Gain Out | 0 - 16<br>(the default is 8) | Lets you amplify the analog audio signal before or during encoding. |
| Balance Out | 0 - 32<br>(the default is 16) | Lets you shift the balance to the left or the right channel. |

**Table 40: Advanced Audio Encoding Parameters**

### Adjusting Parameters while playing a Channel

- To view and set parameters while playing the channel (on the fly), select the desired channel and click **Edit**

; parameters appear for editing as listed below.

| Audio 1 and 2 | Settings | Comments |
|---|---|---|
| SAP | Select or clear the check box. | To fully implement SAP service refer to SAP Service (on page 93). |
| Gain | 0 - 16 (default is 8) | Lets you amplify the analog audio signal before or during encoding. |
| Balance | 0 - 32 (default is 16) | Lets you increase or decrease the signal on the left or right side respectively. |

**Table 41: Parameters available on the Fly**

# DVB Recasting/Transrating Parameters

## DVB Input

- If you are in the process of editing a channel, click the DVB Input tab; input parameters appear.

| Parameter | Settings | Comments |
|---|---|---|
| Max Bit Rate (Kbps) | 200 - 30000 | Sets the program's maximum bit-rate. Do not change this parameter.<br>This field does not show when adding or editing a DVB Transrating channel. |
| Input Interface | 1, 2, 3, 4 | Displays the input interface in use. |
| Program | | Displays the program in use. For a list of all programs, click ...; a list of available programs appears. The number of available programs depends on the source in use. |
| VBR Output | To enable this option, check the associated check box. | Enables/disables transmission at variable bit-rates. On the Target page, Speed Strategy must be turned off. |
| PMT PID Remap | Available range: 0 - 8191 | Assigns a new ID to the Programs Map PID if checked. To enable this option, check the associated checkbox. |
| Video PID Remap | Available range: 0 - 8191 | Assigns a new ID to the video PID. To enable this option, check the associated checkbox. |
| Audio PID Remap | Available range: 0 - 8191 | Assigns a new ID to the first audio PID. To enable this option, check the associated checkbox. |

**Table 42: DVB Input Parameters**

**Note**

- DVB Recaster. Using the standard hardware configuration, you can transmit at an accumulated bit-rate of up to 40000000 bps per DVB recaster. If Full Bit Rate is enabled ✔, you can transmit up to 60000000 bps. To verify the status of Full Bit Rate, refer to the DVB Recaster service board's parameter page.
- DVB Transrater. Up to five DVB Transrating channels and additional DVB Recasting channels can transmit at an accumulated bit-rate of up to 60000000 bps per DVB transrater. You have a DVB transrater installed if Transrating is enabled ✔.
- If you are remapping PIDs, make sure to choose a different ID for each PID.

## MPEG-1/2 Transrating

- If you are in the process of editing a channel, click the MPEG-1/2 Processing tab; you are able to adjust the bit-rate.

| Parameter | Settings | Comments |
|---|---|---|
| Max Bit Rate (Kbps) | 0 - 10000<br>(the default is 3500) | Specify the video bit-rate for the current DVB Transrater channel. |
| Total Bit Rate (bps) | | Displays the accumulated bit-rate for this DVB Transrater channel. The accumulated bit-rate is the total of video, audio and data bit-rates. |

**Table 43: Processing Parameters for DVB Transrating**

### Note

- The MPEG-1/2 tab does not show when adding or editing DVB recasting channels.
- You can add up to five DVB transrating channels and additional DVB recasting channels and transmit at an accumulated bit-rate of up to 60000000 bps per DVB transrater.

# DVB Transcoding Parameters

## Input Parameters

### ASI Input

- If you are in the process of editing a channel, click the DVB Input tab; input parameters appear.

| Parameter | Settings |
|---|---|
| DVB Interface | Displays the DVB input interface in use. |
| Program | Displays the program in use. For a list of all programs, click ...; a list of available programs appears. The number of available programs depends on the source in use. Programs can consist of one video and two audio PIDs. PIDs associated with the respective program appear in the relevant PID fields below once you select the desired program and click **OK** OK. |
| Video PID | Displays the video PID associated with the program currently in use. If this program does not contain a video PID, this field is unavailable or does not show.<br><br>To choose a video PID, click ... and choose the desired video PID from the list; the associated program appears in the Program field. |
| Audio PID 1&2 | Displays the first audio PID associated with the program currently in use. If the associated program does not contain an audio PID, this field is unavailable or does not show.<br><br>To choose an audio PID separately, check the associated checkbox, click ... and choose the desired audio PID from the list. |
| PCR PID | This field displays the PCR PID. If the respective program is not associated with a PCR PID, this field is unavailable or does not show.<br><br>To choose a PCR PID separately, check the associated checkbox, click ... and choose the desired PCR PID from the list. |

**Table 44: ASI Input Parameters for DVB Transcoding**

## Encoding Parameters

- Parameters available for re-encoding and instructions for accessing them can be found on Encoding Parameters (on page 104).

## H.264 Pass Through Parameters

Pass Through enables the selection of maximum six channels from all types (Audio, TeleText, Subtitle, or any other type).

## To add Pass Through PIDs:

1. Click the **DVB Input I/F** tab. The DVB input I/F page appears.

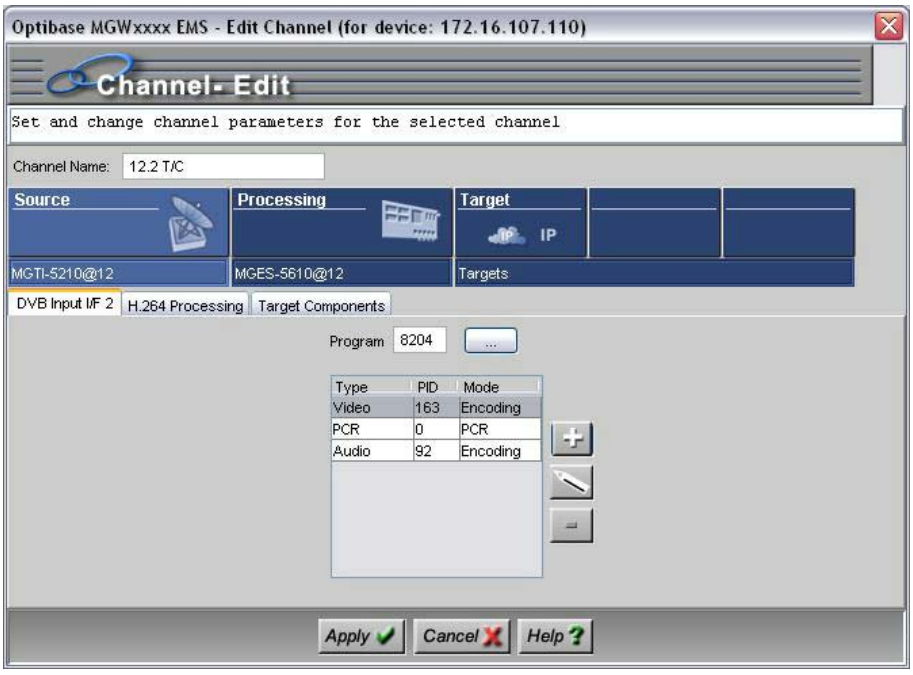



**Figure 44 .DVB input I/F page**

2. Click ... and select the required program. The Select program window appears.

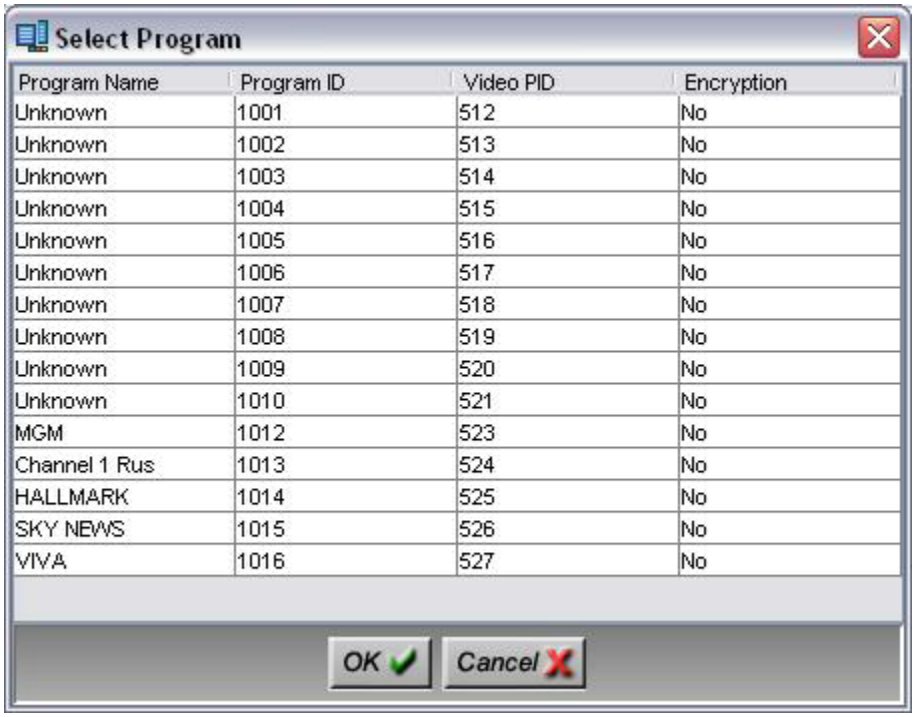



**Figure 45 .Select Program window**

3. Click the + button. The **Add PID** windows appears.

**Figure 46 .Add PID window**

4. Click ... to select the appropriate PID or type it. The **Type** is set automatically when the PID is selected. If not, from the **Type** drop-down menu select the appropriate type **(Audio, Teletext, Subtitle** or **Other)**.

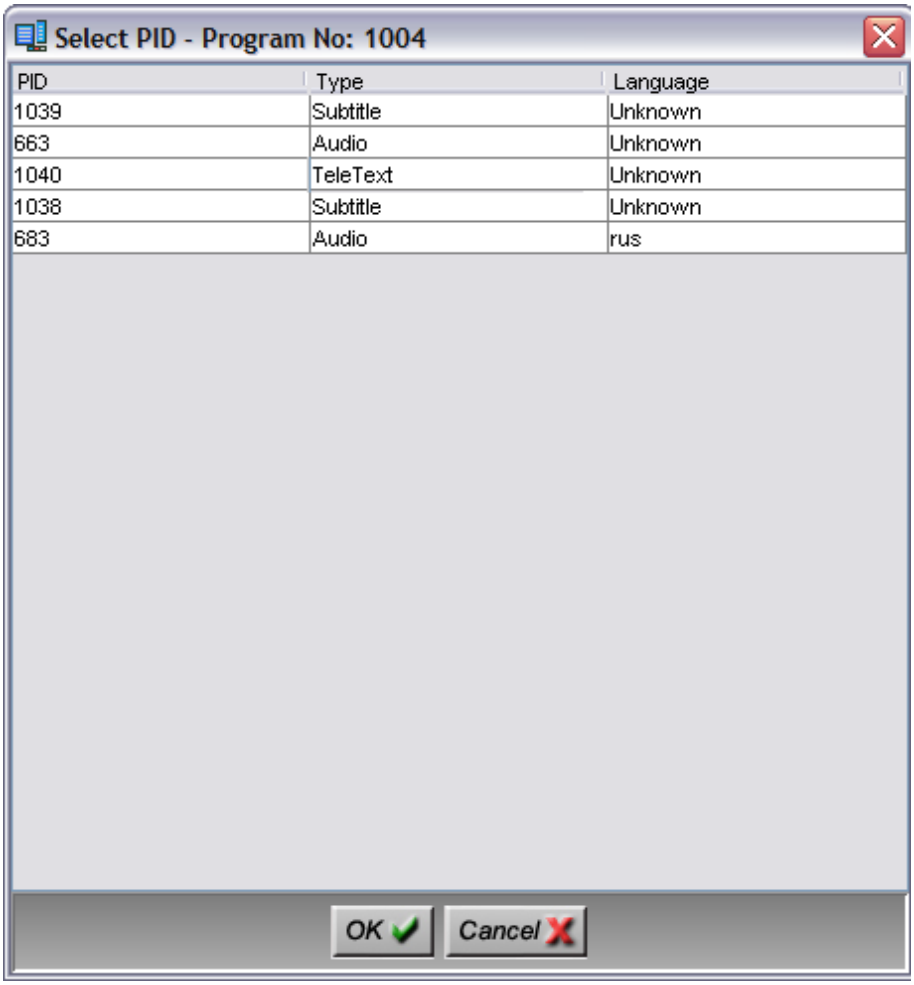



**Figure 47 .Select PID window**

5. Click **OK**.

**Note**

- To add multiple PIDs, click Apply.
- If PID is selected for encoding, it cannot be selected for pass through. When selected for pass through, same PID cannot be selected more than once.
- When the selected PID is Audio type, Ensure that the Process Mode is set for P/T.
- If automatic detection of Subtitle PID fails ( PID, Language or Type fields indicate for example Unknown or do not show) perform the following steps:

6. Add the required PID.

7. Click the **H.264 Processing>P/T** tab

8. Select the required PID

9. Click **Edit** and type the Descriptor values manually (provided by compatible DVB Stream Analyzers). See details in the following table. See figure below.

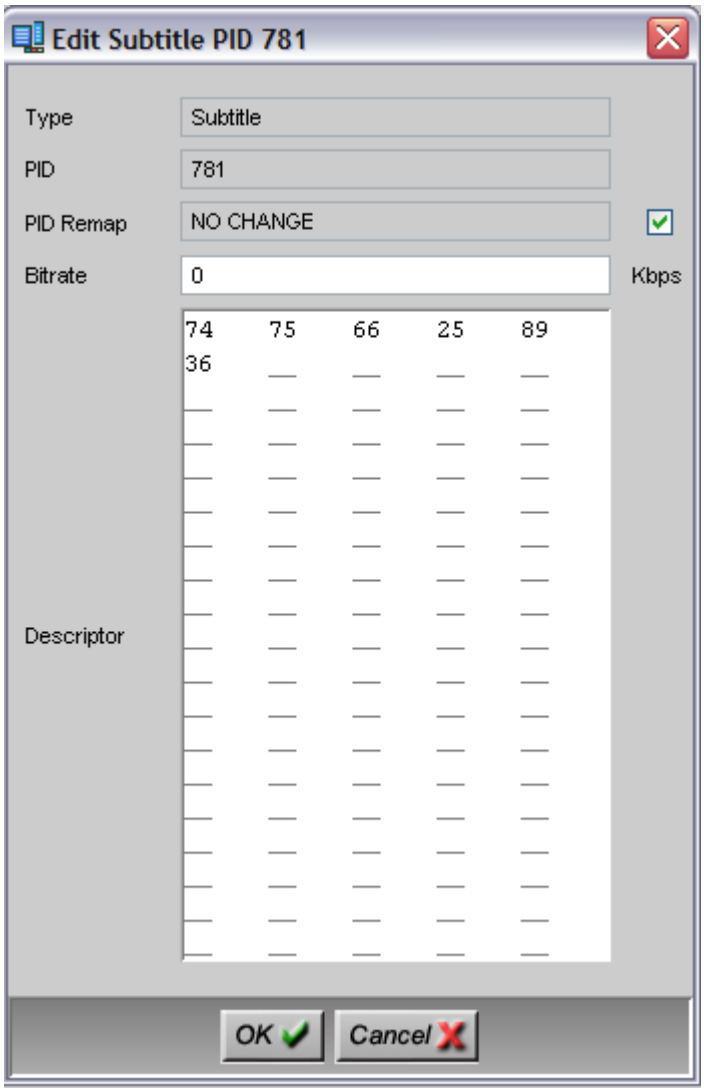



**Figure 48 .Edit Subtitle PID window**

**Table 45:**

**Table 46:**

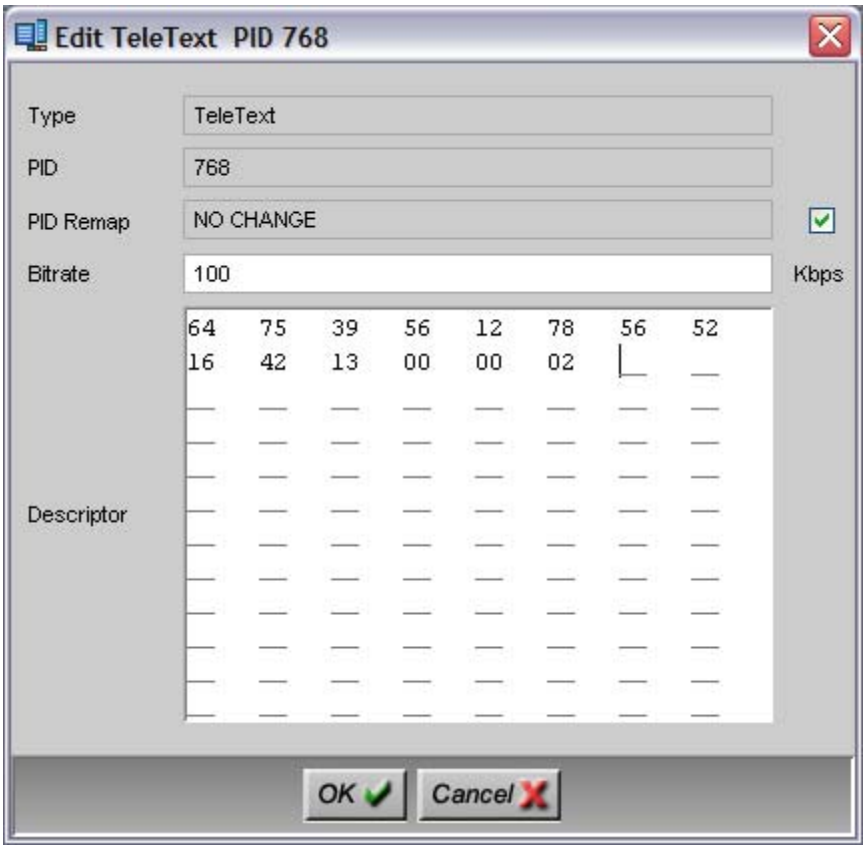



**Figure 49 .Edit Teletext PID window**

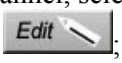
| Parameter | Settings | Comments |
|---|---|---|
| Type | Audio<br>TeleText<br>Subtitle<br>Other | Can be set from **Add PID** window and from **Edit <type> PID <#>** only viewed. |
| PID | Enter the appropriate PID number from the programs list. | Can be set from **Add PID** window and from **Edit <type> PID <#>** only viewed. |
| PID Remap | Available range:<br>32 - 8191 | Assigns a new ID to the selected PID. To enable this option, uncheck the associated checkbox (when checkbox is checked the PID number remains) |
| Bitrate | Available range:<br>0 - 700 | During channel configuration, P/T PID bitrate is automatically calculated. If required, it can be manually changed. |
| Descriptor | Only Hexadecimal values can be used. | Applies to subtitle or Teletext type of PID only.<br>The first three value pairs in each row represent the chosen language (English, German, etc.)<br>The remaining value pairs in that row represent the descriptor data. |

**Table 47: Teletext and Subtitle Parameters**

# Target Parameters

## UDP Targets

MGW x100 supports up to eight UDP targets per channel. The Channel wizard adds one UDP target by default while adding a channel.

- If you are in the process of adding a channel, select the UDP target in the Channel wizard's step 3 and click **Edit** 

; the Target Parameters page appears.

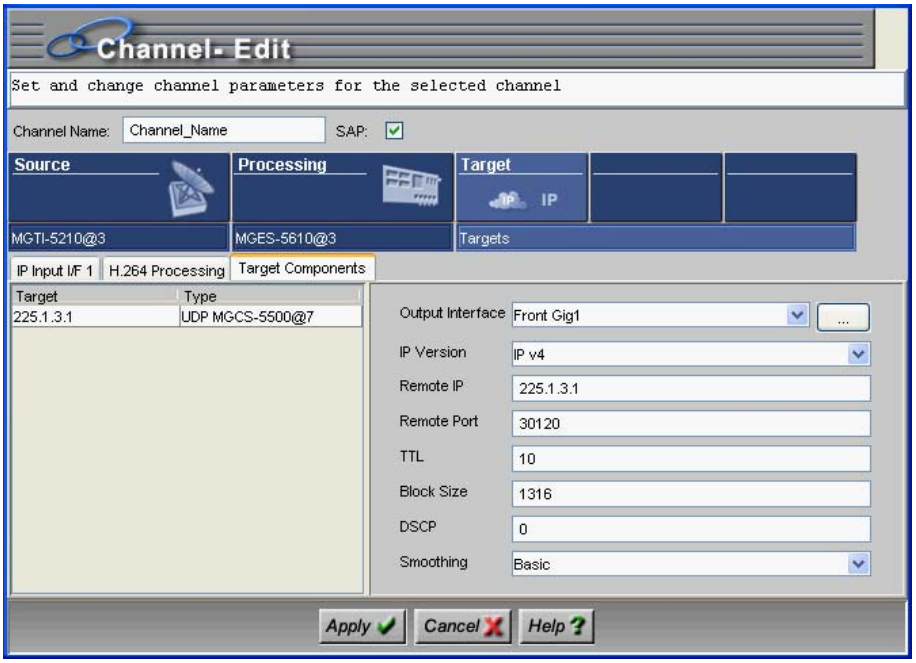



**Figure 50 .Target Components, IPv4 window**

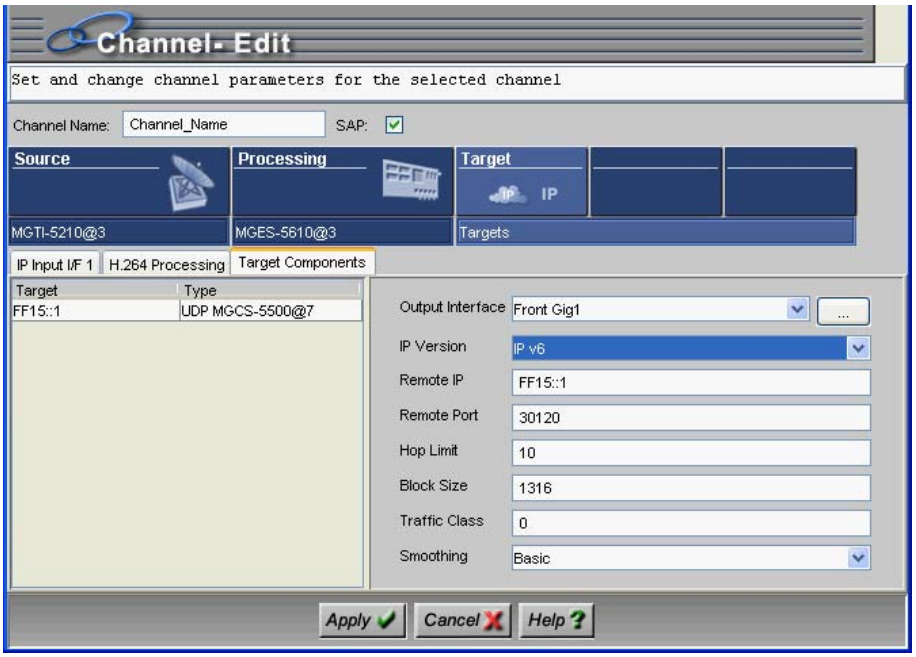



**Figure 51 .Target Components, IPv6 window**

- If you are in the process of editing a channel, click the Target tab and select the desired target from the list; the associated target parameters appear to the right.

| Parameter | Settings | Comments |
|---|---|---|
| Output Interface | PMC Ch B<br>PMC Ch A<br>Front Gig1<br>Front Gig2<br>Rear B | If transmitting Unicast, choose 0 and click Apply; MGW x100 automatically sets the output interface according to the subnet associated with the Target IP address.<br>If transmitting Multicast, click ... and select an the required output interface. 0 option is for Unicast only.<br>If you edited the default description, you identify the interface according to the modified description.<br>If Net work redundancy is applied, standby interface will not be available as an option. |
| IP Version | IPv4<br>IPv6 | When wide range of IP addresses is required, use IPv6. |

| | | |
|---|---|---|
| Remote IP | Multicast IP addresses For IPv4:<br>224.0.0.0 - 239.255.255.255<br>255.1.1.1 default | If you transmit Multicast, choose an IP address within the listed range.<br>Make sure that the relevant receivers are set to the same Multicast IP address. |
| | For IPv6:<br>FF15:0000:0000:0000:0000:0000:0000:0000:FF15:FFFF:FFFF:FFFF:FFFF:FFFF:FFFF:FFFF: | |
| | Unicast IP address | Set the IP address of the receiving device and disable Multicast on the receiver site. |
| Remote Port | 30120 (default) | Port via which the stream is transmitted. |
| TTL/Hop Limit | 1 - 255<br>(the default is 10) | Number of network devices the stream can pass to reach its destination. |
| Block Size | 512 - 64,000<br>The default is 1316 | We recommend choosing 1316. |
| DSCP/Traffic Class | 0 - 255<br>(the default is 0) | Enter a multiple of four between 0 and 255. This value reflects a type of service that ensures high priority for a video stream transmitted over the network. |
| Smoothing | Full | The latency is adjusted to ensure a smooth and constant bit-rate. |
| | Basic (default) | Basic adjustment is made to the latency to ensure smoother streams. |
| | Off | The latency is low, which may result in bursty streams.<br>This setting is required for DVB recasting in variable bit-rates (VBR) and radio channel (low bit-rate). |

**Table 48: UDP Target Parameters**

## IP Differentiated Services

MGW x100 supports the IP Type of Service (ToS) in accordance with RFC-791, RFC-1112 and RFC-2474 (Differentiated Services Field in the IPv4 Header). You can set the Type of Service field in the IP header to a value between 0 and 255. For example, to set the Type of Service to all 0, enter **0**. To set the Type of Service to all 1, enter **255**. The IP Differentiated Services redefines how the historical ToS field is used. DiffServ allows IP networks to provide certain Quality of Service features. If you are not sure whether your network supports ToS or DiffServ, we recommend setting DSCP to **0**.

The historical IP Type of Service Field definition is as follows:

| Bits | Values | Description |
|---|---|---|
| 0 - 2 | 1 1 1 | Network Control |
| | 1 1 0 | Internet Control |
| | 1 0 1 | CRITIC/ECP |
| | 1 0 0 | Flash Override |
| | 0 1 1 | Flash |
| | 0 1 0 | Immediate |
| | 0 0 1 | Priority |
| | 0 0 0 | Routine |
| 3 | 0 | Normal Delay |
| | 1 | Low Delay |
| 4 | 0 | Normal throughput |
| | 1 | High Throughput |
| 5 | 0 | Normal Reliability |
| | 1 | High Reliability |
| 6 - 7 | 0 | Not used |
| | 0 | Not used |

**Table 49: Bit Values**

## Secondary Stream Targets

### To set a secondary stream targets (applicable only to H.264):

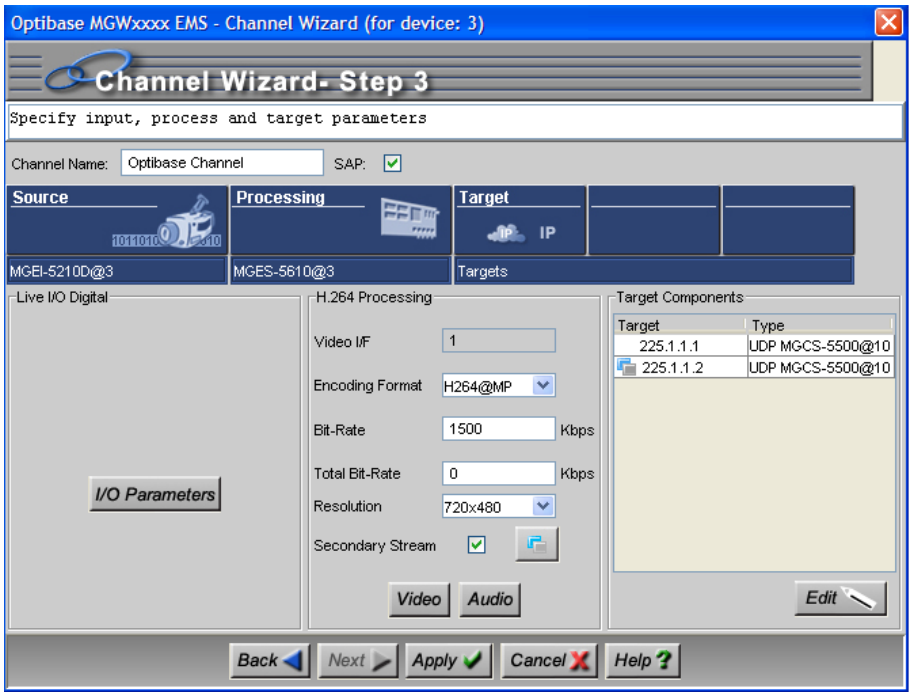



**Figure 52 .Channel Wizard - Step 3 window**

1. In the **Target Components** section, double click the channel secondary stream row or select this row and click **Edit.** The UDP Secondary Stream window appears.

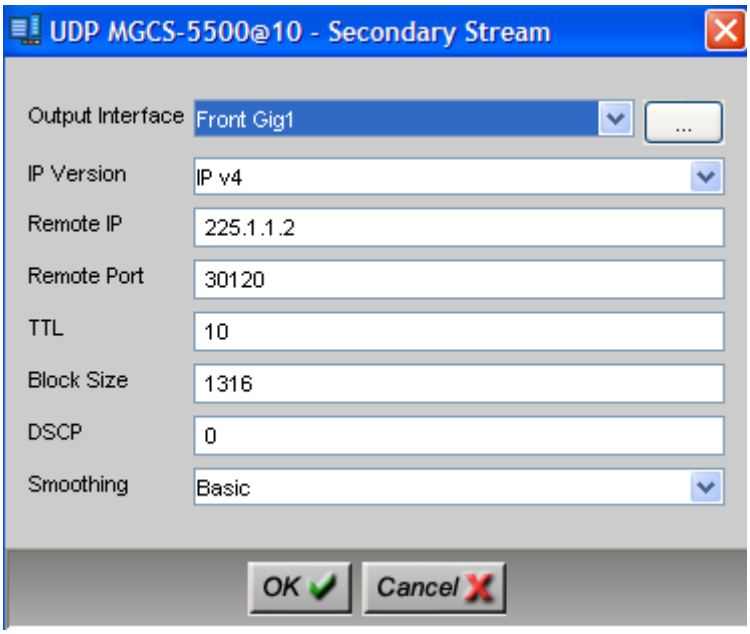



**Figure 53 .UDP Secondary Stream window**

2. In the **Remote IP** field type the secondary channel IP address.

**Note**

The set target IP address for the secondary channel MUST be different from the target IP address set for the primary channel otherwise stream will not be displayed properly .

3. Refer to the UDP Targets (on page 136) section for a comprehensive description of all other parameters.

4. Click **OK**.

# Version Management

System software versions will be made available for upgrading a unit using MGW EMS. The respective software versions will be available as zip files for download from Optibase's FTP site or distributed on a CD. Instructions and required passwords are provided with upgrade release notes as relevant.

Depending on available disk space, MGW EMS allows you to upload and store up to three software versions that you can activate when desired. You can view the Version Definition files (VDF files) of uploaded and activated software versions in the Version Management window under **Available Versions**. The currently active version's VDF file appears under **Current Version**. The Version Management window also displays used and available disk space on the host controller's disk where uploaded software versions are stored.

**To view a list and details of current software versions:**

1. In the Main window, on the toolbar, click **SW Version**

; the Version Management window appears and displays the VDF files of currently uploaded and active software versions. The relevant unit's disk can host up to two additional software versions besides the default version. The default version is referred to by **DEFVER.VDF** and cannot be deleted.

2. Select the desired software version from the list and click **Properties**

; a window appears displaying the selected version's details.

**To upload a new software version:**

1. In the Version Management window, click **Add**

; the File Dialog window appears, displaying zip files and the associated Version Definition files (*.vdf).

2. If relevant, navigate to the desired software version's location.

3. Select the desired zip file and click **Add SW Version**; the selected software version uploads, which may take several minutes.

**To activate a software version:**

1. Verify that channels associated with the affected boards are stopped and make a note of associated channel parameters as these channels will be removed.

Encoders. Encoding and transcoding channels will be removed.

DVB transcoders. Transcoding channels will be removed.

1. DVB recasters. DVB recasting and DVB transrating channels will be removed.

DVB transraters. DVB recasting and DVB transrating channels will be removed.

Switch and/or host controller. All channels are removed and the system resets.

1. Select the desired software version from the list and click **Activate**

; the affected boards reset or the entire unit reset. If the software version affects the switch, it may take up to 15 minutes until the relevant unit is ready to operate again.

2. If this software version supports the currently installed version of MGW EMS, the associated unit logs on again.

3. If this software version requires a different version of MGW EMS, the associated unit remains logged off. In this case, close MGW EMS and refer to the associated installation guide for instructions on installing a different version of MGW EMS.

**To delete a software version:**

1. Make sure that the desired version is not running.

2. Select the desired software version and click **Del**

; the selected software version is deleted and the associated VDF file is removed from the Available Versions list.

**To refresh the list of available software versions:**

1. Click **Refresh**

; the list of available software versions updates.

To free disk space, we recommend deleting rarely frequented software versions and keeping them available on a PC or server on the network.

# Operating Channels

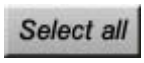
## Transmitting Channels

The number of channels you can transmit depends on the type of boards and available bandwidth.

1. Log on to MGW x100 as **Super User**; the Main window appears with the Boards page open. If you log on as **Guest,** you cannot operate channels**.**

2. Click the Channels tab; the Channels page appears.

3. On the Channels page, select the desired channel and click **Play**

; the selected channel starts playing. To start all channels, click **Select All** 

and then **Play**

.

   If a channel displays an error, refer to the relevant chapter on viewing the associated error code.

### If a channel fails and a hot stand-by channel has been added:

- The hot stand-by channel takes over automatically. For instructions on adding a hot stand-by channel, refer to relevant chapter. The hot stand-by channel is marked with a blue arrow ↘.

- If you do not want the hot stand-by channel to take over automatically, enter the command line interface and disable the relevant internal commands. For further information and instructions, refer to the installation guide.

### To switch manually to the hot stand-by channel:

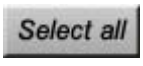
- Right-click the relevant hot stand-by channel and select **Hot Stand-By**; the primary channel stops and the hot stand-by channel starts playing.

### To return to the primary channel after the error is resolved:

- Right-click the relevant primary channel in the Channels list and select **Restore**; the primary channel resumes playing.

## Stopping Channels

- On the Channels page, select the desired channel and click **Stop**

; the desired channel stops transmitting. To stop all channels, click **Select All** 

and then **Stop**

.

# In Case of Problems

- If Host A and/or Switch A fail, Host B and Switch B take over (if installed); Host A and Switch A reset. In this scenario, MGW EMS switches over to Host B and the last-saved **Autostart** configuration reloads, which may take up to four minutes.
- For additional problems, refer to the Maintenance Manual that includes a trouble shooting section.

## Alarms

MGW x100 displays alarms using four severity levels. The numbers on the buttons display the number of open alarms associated with that severity level.

| Severity Level | Button |
|---|---|
| Critical | |
| Major | |
| Minor | |
| Warning | |

**Table 50: Viewing Alarms according to Severity**

- To display alarms, click the respective button.The Alarms list appears and displays the respective alarms. The number on the button states the number of open alarms.
- To display alarms associated with a different severity level, go to **Severity Filter** and choose a different severity level from the list.
- To display all alarms, go to **Severity Filter** and choose **All** from the list OR on the Main window, click **Total**.

A list of alarms and suggestions can be found in the MGW EMS help. Alarms are removed from the list once the problem has been solved.

### Info messages:

In some cases, info messages may appear indicating that one or more parameters have changed, for example a LED status or channel parameters.

## Where to find Error Messages

An error message appears if hardware is defective or you chose unavailable parameters. A list of error messages and suggestions can be found in the MGW EMS help. If a channel encountered an error, refer to relevant chapter for instructions viewing the error codes.

# Reports

In an effort to assist you in case of problems, MGW EMS lets you export your current system profile to an XML file that you can send to a technical support engineer. You can also view various configuration reports.

### Available reports:

- **Boards Inventory**. Displays a list of currently installed boards and associated parameters.
- **Channel Paths**. Displays a list of channels with targets and associated parameters.
- **Channels**. Displays a list of channels and indicates the status for each channel.
- **Event Log**. Displays channel events.
- **Network Interfaces**. Displays available network interfaces, their aliases and associated parameters.
- **Open Alarms**. Displays a list of open alarms with descriptions.
- **SW Versions**. Displays active and available system software versions.
- **TS Errors**. Displays the number of errors in DVB programs that have occurred within a given time period.

### To view a report:

1. From the menu, choose **Tools** and then **Reports**; the Report menu appears.
2. Choose the desired report; your default Internet browser appears and displays the desired report as an HTML page.

### To download your system profile:

1. From the menu, choose **Tools** and then **Dump Device MIB**; the File Dialog window appears.
2. Add an existing XML file from the list or define a new file and click **Save**; the system profile downloads. If you define a new file, you have to add the suffix XML.
3. Locate the new XML file and submit it to your Technical Support engineer.

# Chapter 3

# System Specifications

This book lists and explains system and module specifications for the chassis, I/O and service boards.

## In This Chapter


- Chassis 147
- Host Controller Units 149
- Switch 151
- H.264 Encoder 152
- MPEG Encoder 156
- Live Input 159
- DVB Input - Transcoding 161
- DVB Recaster/Transrater 162
- Pinout Specifications 164

# Chassis

## Physical

| | |
|---|---|
| Dimensions: | Width: 19" |
| | Height: 4RU (height of 8 cPCI slots) |
| | Depth: 12" |
| | 19" rack compliant |
| Net Weight | Empty chassis without power supplies and boards: 7.8 kg |
| | Power supply: 0. 65 kg |
| | I/O Board: Approx. 0.3 kg |
| | Service board: Approx. 0.5 kg |
| | Slot cover: 0.25 kg |
| Scalability | Host controller and switch boards, field swappable |
| | Live encoder, DVB recaster, DVB transrater and DVB transcoder boards, hot swappable |
| Fans | Integrated, must be replaced every 7 years. Call for technical support to have the fans replaced |
| Power supplies | Power supplies are hot swappable. |

## Enviornmental

| | |
|---|---|
| Operating temperature | +5°C to +40°C |
| Storage temperature | -40°C to +70°C |
| Humidity (non-condensing) | 5 to 95% |
| Max altitude for operating | 3100 m |
| Max altitude for storage | 3100 m |
| Vibration (operating and storage) | Sinusoidal vibration |
| | 5-62Hz 5 mm/s |
| | 62-200Hz 2 m/s2 |
| Vibration (transportation) | Random vibration |
| | 10-200Hz 1 m2/s3 |
| | 200-2000Hz 0.3 m2/s3 |
| Shock (transportation) | Half sine |
| | 6ms 18g |
| | 6 axes ´ 100 bumps |
| Free fall (transportation) | 0.5m |
| EMC standards | EN 55022: Class A Conducted and Radiated Emission |
| | EN 50082-1: Immunity |
| | FCC CFR 47 Part 15 |

## Electrical Characteristics

| | |
|---|---|
| Power consumption: | A fully loaded unit requires up to 600W |
| Voltage/Current Ratings AC | 100 - 240V AC; 4 - 1.8A; 50/60Hz |
| Voltage/Current Ratings DC | 36 - 72V DC (Dual DC); 9A |

## Safety Standrads

| | |
|---|---|
| CE-LVD | EN60950 (ITE) |

**Note**

Do not connect MGW 1100 to a voltage source, if you are not sure that the local voltage is supported and you have the proper power supplies installed. Connecting an AC powered unit to a DC source and vice versa will damage that unit and cause personal injury.

Always operate MGW 1100 with all power supplies, otherwise MGW 1100 may fail.

Make sure that you replace power supplies one by one if necessary or switch MGW 1100 off while replacing.

# Host Controller Units

## Host Service Board - MGCS-5500

The service board in use is based on CPCI specified processing boards.

### Dimensions

| | |
|---|---|
| Board | 233.4 x 160 mm, 9.2" x 6.3" |
| Bracket | 261.8 x 19.8 mm, 10.3" x 0.8" |

### Management

| |
|---|
| MGW EMS (installed on the Management PC) |
| SNMP agent |
| Telnet and FTP clients for remote configuration and upgrades |
| RS232 local craft management |

### Network Protocols

| |
|---|
| UDP Multicast and Unicast |
| TCP/IP |
| SNMP |

### Input/Output Interfaces

| | |
|---|---|
| **VGA** | HD-DB-15 female |
| **Serial port RS-232 (COM1)** | D-9 - local crafts terminal |
| **2 x Giga Ethernet port** | 2 x RJ-45 |
| **Optional I/F:** | |
| **2 x 1000SX port** | 2 x SC-type - 1 for connects the host controller to the switch MGSS5000, 1 for network |
| **2 x Giga Ethernet port** | 2 x RJ-45 - Networks (only with switch MGSS5500) |
| **Compliance** | |
| | IEEE 802.3 |
| | IEEE 802.3ac |
| | IEEE 802.3z |
| | IEEE 802.3x |

| | |
|---|---|
| | IEEE 802.1p |
| | IEEE 802.1Q |
| **Cabling for 1000SX** | 850 nanometer fiber: |
| | 50 micron multimode = 550 meters max. |
| | 62.5 micron multimode = 220 meters max. |

## Host I/O Board - MGCI-5500

### Dimensions

| | |
|---|---|
| Board | 233.4 x 160 mm, 9.2" x 6.3" |
| Bracket | 261.8 x 19.8 mm, 10.3" x 0.8" |

### Input/Output Interfaces

| | |
|---|---|
| COMA (serial port) | DB-9 male - not used |
| COMB (serial port) | DB-9 male – not used |
| Gig. Ethernet A - Ethernet port | RJ-45 – used for network |
| Gig. Ethernet B - Ethernet port | RJ-45 – used for management |

# Switch

## Interphase

### Switch Service Board - MGSS-1100

This switch does not use an I/O board.

#### Dimensions

| | |
|---|---|
| Board | 233.4 x 160 mm, 9.2" x 6.3" |
| Bracket | 261.8 x 19.8 mm, 10.3" x 0.8" |

#### Input/Output Interfaces

| | |
|---|---|
| P10 | RJ-45 - for technician use |

## Intel Switch

### Switch Service Board - MGSS-1100

#### Dimensions

| | |
|---|---|
| Board | 233.4 x 160 mm, 9.2" x 6.3" |
| Bracket | 261.8 x 19.8 mm, 10.3" x 0.8" |

#### Input/Output Interfaces

| | |
|---|---|
| Serial | RJ-45 - for technician use |
| 10/100–23 | RJ-45 - for technician use |
| 10/100–24 | RJ-45 - for technician use |
| 100/1000–25 | RJ-45 - not used |
| 100/1000–26 | RJ-45 - connects the host controller to the switch |

# H.264 Encoder

## Service Board - MGES-5610

| Service Board | Video Channels | Audio Channels |
|---|---|---|
| MGES-5610 | Up to 2 (depending on the hardware configuration you purchased) | 2 per video channel |

## Physical Dimensions

| | |
|---|---|
| Board | 233.4 x 160 mm, 9.2" x 6.3" |
| Bracket | 261.8 x 19.8 mm, 10.3" x 0.8" |

## Standard Compliance

| |
|---|
| ISO/IEC 14496-10 (MPEG-4 part 10, AVC) / H.264 |

## Streaming Format

| | |
|---|---|
| Video Format | MPEG-4 AVC/H.264 |
| Audio Format | AAC-LC, MPEG-1 Layer 2 |
| Audio Mode | Stereo, Dual Mono, Joint Stereo, Duplicate Left/Right. |

## Video Bit-Rates

| | |
|---|---|
| Video bit-rates | 0.1 Mbps - 2.5 Mbps for all resolutions |

## Video Resolutions

| NTSC | PAL | Format |
|---|---|---|
| 320x240 | 352x288 | CIF |
| 176x240 | 192x144 | QCIF |
| 176x112 | 176x288 | |
| 160x240 | 176x144 | |
| 160x112 | 160x288 | |
| | 160x144 | |
| 352x480 | 352x576 | HD-1 |
| 480x480 | 480x576 | 2/3-D1 (720) |
| 528x480 | 528x576 | |
| 544x480 | 544x576 | |

| | | |
|---|---|---|
| 640x480 | 640x576 | |
| 720x480 | 720x576 | FD-1 (720) |

## Audio Modes and Bit-Rates

The following table describes audio modes and their available bit rates

Key:

- v - supported
- x - not supported

| **MPEG 1 Layer 2** | | | | | | | **AAC-LC** | | | | | | **AAC+** | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 48kHz | Stereo | Mono | Dual | Joint | Duplicate | Duplicate | Stereo | Mono | Dual | Joint | Duplicate | Duplicate | Stereo | Mono | Dual | Joint | Duplicate | Duplicate | 48kHz |
| 16 | X | X | X | X | X | X | X | v | X | X | X | X | X | v | X | X | X | X | 16 |
| 32 | v | v | v | v | v | v | v | v | v | v | v | v | v | v | v | v | v | v | 32 |
| 48 | v | v | v | v | v | v | v | v | v | v | v | v | v | v | v | v | v | v | 48 |
| 56 | v | v | v | v | v | v | v | v | v | v | v | v | v | v | v | v | v | v | 56 |
| 64 | v | v | v | v | v | v | v | v | v | v | v | v | v | v | v | v | v | v | 64 |
| 80 | v | v | v | v | v | v | v | v | v | v | v | v | v | v | v | v | v | v | 80 |
| 96 | v | v | v | v | v | v | v | v | v | v | v | v | v | v | v | v | v | v | 96 |
| 128 | v | v | v | v | v | v | v | v | v | v | v | v | v | X | v | v | v | v | 128 |
| 160 | v | v | v | v | v | v | v | v | v | v | v | v | X | X | X | X | X | X | 160 |
| 192 | v | v | v | v | v | v | v | v | v | v | v | v | X | X | X | X | X | X | 192 |
| 224 | v | x | v | v | v | v | v | v | v | v | v | v | X | X | X | X | X | X | 224 |
| 256 | v | x | v | v | v | v | x | v | v | v | v | v | X | X | X | X | X | X | 256 |
| 320 | X | X | X | X | X | X | x | X | v | v | v | v | X | X | X | X | X | X | 320 |

| MPEG 1 Layer 2 | | | | | | | AAC-LC | | | | | | AAC+ | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 44,1kHz | Stereo | Mono | Dual | Joint | Duplicate | Duplicate | Stereo | Mono | Dual | Joint | Duplicate | Duplicate | Stereo | Mono | Dual | Joint | Duplicate | Duplicate | 44,1kHz |
| 16 | X | X | X | X | X | X | X | v | X | X | X | X | X | v | X | X | X | X | 16 |
| 32 | v | v | v | v | v | v | v | v | v | v | v | v | v | v | v | v | v | v | 32 |
| 48 | v | v | v | v | v | v | v | v | v | v | v | v | v | v | v | v | v | v | 48 |
| 56 | v | v | v | v | v | v | v | v | v | v | v | v | v | v | v | v | v | v | 56 |
| 64 | v | v | v | v | v | v | v | v | v | v | v | v | v | v | v | v | v | v | 64 |
| 80 | v | v | v | v | v | v | v | v | v | v | v | v | v | X | v | v | v | v | 80 |
| 96 | v | v | v | v | v | v | v | v | v | v | v | v | v | X | v | v | v | v | 96 |
| 128 | v | v | v | v | v | v | v | v | v | v | v | v | v | X | v | v | v | v | 128 |
| 160 | v | v | v | v | v | v | v | v | v | v | v | v | X | X | X | X | X | X | 160 |
| 192 | v | v | v | v | v | v | v | v | v | v | v | v | X | X | X | X | X | X | 192 |
| 224 | v | x | v | v | v | v | v | v | v | v | v | v | X | X | X | X | X | X | 224 |
| 256 | v | x | v | v | v | v | v | v | v | v | v | v | X | X | X | X | X | X | 256 |
| 320 | X | X | X | X | X | X | v | X | v | v | v | v | X | X | X | X | X | X | 320 |

| MPEG 1 Layer 2 | | | | | | | AAC-LC | | | | | | AAC+ | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 32kHz | Stereo | Mono | Dual | Joint | Duplicate | Duplicate | Stereo | Mono | Dual | Joint | Duplicate | Duplicate | Stereo | Mono | Dual | Joint | Duplicate | Duplicate | 32kHz |
| 16 | X | X | X | X | X | X | X | v | X | X | X | X | X | v | X | X | X | X | 16 |
| 32 | v | v | v | v | v | v | v | v | v | v | v | v | v | v | v | v | v | v | 32 |
| 48 | v | v | v | v | v | v | v | v | v | v | v | v | v | v | v | v | v | v | 48 |
| 56 | v | v | v | v | v | v | v | v | v | v | v | v | v | v | v | v | v | v | 56 |
| 64 | v | v | v | v | v | v | v | v | v | v | v | v | v | v | v | v | v | v | 64 |
| 80 | v | v | v | v | v | v | v | v | v | v | v | v | v | X | v | v | v | v | 80 |
| 96 | v | v | v | v | v | v | v | v | v | v | v | v | v | X | v | v | v | v | 96 |
| 128 | v | v | v | v | v | v | v | v | v | v | v | v | v | X | v | v | v | v | 128 |
| 160 | v | v | v | v | v | v | v | v | v | v | v | v | X | X | X | X | X | X | 160 |
| 192 | v | v | v | v | v | v | v | X | v | v | v | v | X | X | X | X | X | X | 192 |

| | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 224 | v | x | v | v | v | v | v | X | v | v | v | v | X | X | X | X | X | X | 224 |
| 256 | v | x | v | v | v | v | v | X | v | v | v | v | X | X | X | X | X | X | 256 |
| 320 | X | X | X | X | X | X | v | X | v | v | v | v | X | X | X | X | X | X | 320 |

# MPEG Encoder

## Service Board - MGES-5200

| Service Board | Video Channels | Audio Channels |
|---|---|---|
| MGES-5200 | 2 | 4 |

## Physical Dimensions

| | |
|---|---|
| Board | 233.4 x 160 mm, 9.2" x 6.3" |
| Bracket | 261.8 x 19.8 mm, 10.3" x 0.8" |

## Standard Compliance

| |
|---|
| ISO/IEC 11172 (MPEG-1),<br>ISO/IEC 13818 (MPEG-2) |

## Video Bit-Rates

| | |
|---|---|
| Video bit-rates | 0.18 Mbps - 5 Mbps MPEG-1<br>1.5 - 10 Mbps MP@ML MPEG-2<br>1.5 - 15 Mbps SP@ML MPEG-2 |

## Audio Bit-Rates

### MPEG-1 Layer 2:

| Audio Bit-Rate / [bps] | Supported Audio Mode |
|---|---|
| 32000 | Mono |
| 48000 | Mono |
| 56000 | Mono |
| 64000 | Mono, Stereo |
| 80000 | Mono |
| 96000 | Mono, Stereo |
| 112000 | Mono, Stereo |
| 128000 | Mono, Stereo |
| 160000 | Mono, Stereo |
| 192000 | Mono, Stereo |
| 224000 | Stereo |
| 256000 | Stereo |
| 320000 | Stereo |

| Audio Bit-Rate / [bps] | Supported Audio Mode |
|---|---|
| 384000 | Stereo |

**Dolby®:**

| Audio Bit-Rate / [bps] | Supported Audio Mode |
|---|---|
| 96000 | Stereo |
| 112000 | Stereo |
| 128000 | Stereo |
| 160000 | Stereo |
| 192000 | Stereo |
| 224000 | Stereo |
| 256000 | Stereo |
| 320000 | Stereo |
| 384000 | Stereo |

## Streaming Format

| | |
|---|---|
| MPEG Streaming Format | System |
| | Program |
| | Transport |
| Audio Format | MPEG-1 Layer 2 |
| | Dolby® |
| Audio Mode | Mono |
| | Stereo |

## Video Resolutions

| PAL & 525 | NTSC & 625 |
|---|---|
| 160x144 | 160x240 |
| 160x288 | 176x112 |
| 176x144 | 176x240 |
| 176x288 | 320x112 |
| 192x144 | 320x240 |
| 320x144 | 320x480 |
| 320x288 | 320x512 |
| 384x288 | 352x112 |
| 320x576 | 352x240 |
| 320x608 | 352x480 |
| 352x144 | 352x512 |
| 352x288 | 368x480 |

| | |
|---|---|
| 352x576 | 368x512 |
| 352x608 | 384x480 |
| 368x576 | 384x512 |
| 368x608 | 480x480 |
| 384x576 | 480x512 |
| 384x608 | 544x480 |
| 480x576 | 544x512 |
| 480x608 | 640x480 |
| 544x576 | 640x512 |
| 544x608 | 704x480 |
| 640x576 | 704x512 |
| 640x608 | 720x480 |
| 704x576 | 720x512 |
| 704x608 | |
| 720x576 | |
| 720x608 | |

# Live Input

## Analog I/O Board - MGEI-5210A

### Dimensions

| | |
|---|---|
| I/O board | 233.4 x 80 mm, 9.2" x 3.2" |
| Bracket | 261.8 x 19.8 mm, 10.3" x 0.8" |

### Input/Output Interfaces

| | |
|---|---|
| Composite/S-Video A and B | BNC |
| Audio A and B | DB-15 male |
| 2 × Ethernet | 2 × RJ-45 (Not used) |

### Input Signals

| | | |
|---|---|---|
| Video Inputs | NTSC & PAL | Composite A and B |
| | | S-Video A and B |
| Audio Inputs | Balanced and Unbalanced Analog Stereo Line Input | Audio A and B |
| | Input impedance | 600 Ω Balanced and Unbalanced |
| | Frequency Response | 20Hz - 20kHz, +/- 0.25 db |
| | Sampling Frequency | 32, 44.1, 48 kHz at 24 bits per sample |

## Digital I/O Board - MGEI-5210D

### Dimensions

| | |
|---|---|
| I/O board | 233.4 x 80 mm, 9.2" x 3.2" |
| Bracket | 261.8 x 19.8 mm, 10.3" x 0.8" |

### Input/Output Interfaces

| | |
|---|---|
| SDI A and B | BNC |
| Loop A and B | BNC |
| Digital Audio A and B | DB-15 male |
| 2 × Ethernet | 2 × RJ-45 (Not used) |

## Input Signals

| | | |
|---|---|---|
| Video Inputs | 525 & 625 | SDI A and B |
| Audio Inputs | Balanced AES3 (AES/EBU) Input | Digital Audio A and B |
| | Input Impedance | 110 Ω Balanced |
| | Sampling Frequency | 32, 44.1, 48 kHz at 24 bits per sample |

# DVB Input - Transcoding

## I/O Board - MGTI-5210X

### Dimensions

| | |
|---|---|
| I/O board | 233.4 x 80 mm, 9.2" x 3.2" |
| Bracket | 261.8 x 19.8 mm, 10.3" x 0.8" |

### Input Interface

| | |
|---|---|
| 2 x DVB-ASI | 2 x BNC |

### Output Signal

| | |
|---|---|
| 2 x Composite Video Out | 2 x BNC |
| 2 x Unbalanced Audio Out | 2 x DB-15 female |

# DVB Recaster/Transrater

## Service Board DVB Recaster - MGRS-5200

### Physical Dimensions

| | |
|---|---|
| Board | 233.4 x 80 mm, 9.2" x 3.2" |
| Bracket | 261.8 x 19.8 mm, 10.3" x 0.8" |

### Standard Compliance

| |
|---|
| MPEG-2 over DVB-ASI Transport to MPEG-2 over IP UDP Demux |

## Service Board DVB Transrater - MGTR-5200

### Physical Dimensions

| | |
|---|---|
| Board | 233.4 x 80 mm, 9.2” x 3.2” |
| Bracket | 261.8 x 19.8 mm, 10.3” x 0.8” |

### Standard Compliance

| |
|---|
| MPEG-2 over DVB-ASI Transport to MPEG-2 over IP UDP Demux |

## I/O Board - MGRI-5200

### Dimensions

| | |
|---|---|
| I/O board | 233.4 x 80 mm, 9.2" x 3.2" |
| Bracket | 261.8 x 19.8 mm, 10.3" x 0.8" |

### Input Interface

| | |
|---|---|
| 2 or 4 x DVB-ASI | 2 or 4 x BNC, depending on the purchased capability.<br>In case of 2 x DVB-ASI, ASI In 3 and 4 are not used. |
| 1 x DVB Monitor Out | BNC |

### Input Signal

| | |
|---|---|
| 2 or 4 x DVB-ASI | DVB-ASI compliant MPEG-2 Transport |

## Output Signal

| |
|---|
| Aggregated bit-rate up to 40000000 or 60000000 bps, depending on the purchased capability. |

# Pinout Specifications

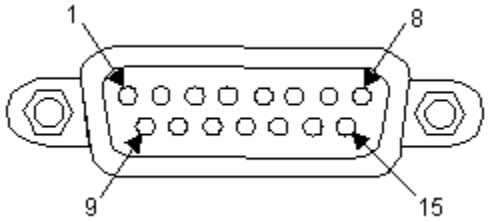



**Figure 54 .DB-15 Male Connector**

## MGI Analog Audio Cable - WCA5197

| DB-15 Female | | XLR Female | |
|---|---|---|---|
| **Pin name** | **Pin #** | **Pin name** | **Pin#** |
| Balanced Audio Left Neg. | 7 | Bal. Audio Left, Ch. 1 | 3 |
| Balanced Audio Left Pos. | 8 | | 2 |
| Balanced Audio Left Gnd. | 15 | | 1 |
| Balanced Audio Right Neg. | 13 | Bal. Audio Right, Ch. 1 | 3 |
| Balanced Audio Right Pos. | 14 | | 2 |
| Balanced Audio Right Gnd. | 6 | | 1 |
| Balanced Audio Left Neg. | 11 | Bal. Audio Left, Ch. 2 | 3 |
| Balanced Audio Left Pos. | 12 | | 2 |
| Balanced Audio Left Gnd. | 4 | | 1 |
| Balanced Audio Right Neg. | 2 | Bal. Audio Right, Ch. 2 | 3 |
| Balanced Audio Right Pos. | 3 | | 2 |
| Balanced Audio Right Gnd. | 10 | | 1 |
| LTC | 1 | LTC | BNC 75 Ω, Signal |
| LTC Gnd | 9 | | BNC 75 Ω, Shield |

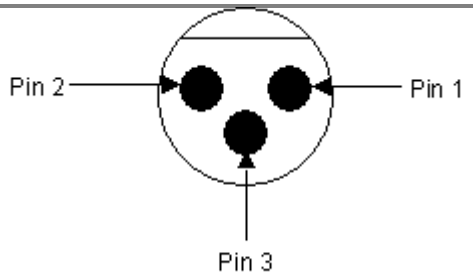



**Figure 55 .XLR Female Connector, Front View**

## MGI Analog Audio Cable - WCA5196

| DB-15 Female | | RCA | | |
|---|---|---|---|---|
| **Pin name** | **Pin#** | **Name** | **#** | **Signal/GND** |
| Audio Left Neg. | 7 | Unbalanced Audio Left Ch. 1 | 1 | Ground |
| Audio Left GND. | 15 | Twisted Shielded Pair (W2) | | |
| Audio Left Pos. | 8 | | | Signal (Center) |
| Audio Left Neg. | 13 | Unbalanced Audio Right Ch. 1 | 2 | Ground |
| Audio Left GND. | 6 | Twisted Shielded Pair (W3) | | |
| Audio Left Pos. | 14 | | | Signal (Center) |
| Audio Left Neg. | 11 | Unbalanced Audio Left Ch. 2 | 3 | Ground |
| Audio Left GND. | 4 | Twisted Shielded Pair (W4) | | |
| Audio Left Pos. | 12 | | | Signal (Center) |
| Audio Left Neg. | 2 | Unbalanced Audio Right Ch. 2 | 4 | Ground |
| Audio Left GND. | 10 | Twisted Shielded Pair (W5) | | |
| Audio Left Pos. | 3 | | | Signal (Center) |
| LTC | 1 | LTC | BNC | Signal (Center) |
| | | RG179 | | |
| LTC Gnd | 9 | (W6) | | Ground |

## MGI Analog Audio Cable - WCA5199

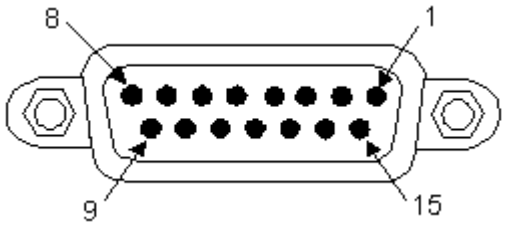



**Figure 56 .DB-15 Female Connector**

| DB-15 Male | | XLR Male | |
|---|---|---|---|
| **Pin name** | **Pin #** | **Pin name** | **Pin#** |
| Balanced Audio Left Neg. | 2 | Bal. Audio Left, Ch. 1 | 3 |
| Balanced Audio Left Pos. | 1 | | 2 |
| Balanced Audio Left Gnd. | 9 | | 1 |
| Balanced Audio Right Neg. | 11 | Bal. Audio Right, Ch. 1 | 3 |
| Balanced Audio Right Pos. | 10 | | 2 |
| Balanced Audio Right Gnd. | 3 | | 1 |
| Balanced Audio Left Neg. | 13 | Bal. Audio Left, Ch. 2 | 3 |
| Balanced Audio Left Pos. | 12 | | 2 |
| Balanced Audio Left Gnd. | 5 | | 1 |
| Balanced Audio Right Neg. | 7 | Bal. Audio Right, Ch. 2 | 3 |
| Balanced Audio Right Pos. | 6 | | 2 |
| Balanced Audio Right Gnd. | 14 | | 1 |

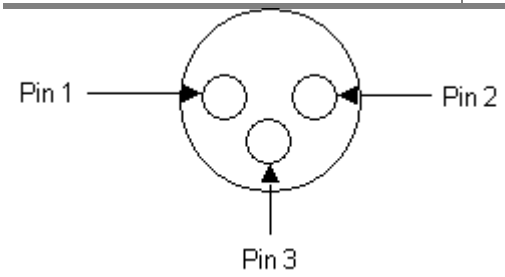



**Figure 57 .XLR Male Connector, Front View**

Chapter 4

# Maintenance

**In This Chapter**


- Troubleshooting 168
- Alarms 176
- Error Messages 181
- Replacing Hardware Components 182
- Technical Support 188

# Troubleshooting

This guide helps you analyze and resolve errors. It lists error messages and alarms and suggests possible solutions. It also instructs you on replacing hardware components.

## While Installing and Configuring MGW x100

This section lists errors and possible solutions that you may encounter while installing and configuring MGW x100 and its components.

To ensure a smooth flow for maintenance, troubleshooting and repair, you should purchase the following spare parts:

- Host controller service and I/O boards.
- Switch service and I/O boards.
- An Alarm board.
- Service units in use, for example service and I/O boards for encoders. The number of spare I/O boards purchased should reflect at least 5% of the respective I/O boards in use.
- Fuses.
- At least one power supply.
- At least one fan tray for each the top and the bottom.
- At least one complete spare chassis if you are operating more than eight units.

### Installing and Removing Boards

| The Problem | Possible Cause | Possible Solution |
|---|---|---|
| I loosened the screw in the injector/ejector handle, but the handle does not open wide enough to remove the board. | The screw has been unscrewed too far, thus blocking the handle. | Close the injector/ejector handles, tighten the screw and then loosen it only until you feel a click; the injector/ejector handle opens and the board can be removed. |

### Switching on and Power Supply

| The Problem | Possible Cause | Possible Solution |
|---|---|---|
| MGW x100 won't turn on. The Power Supply LEDs remain off. | Power supply interrupted. | Restore the power supply to MGW x100.<br>Verify that MGW x100's power supplies |

| The Problem | Possible Cause | Possible Solution |
|---|---|---|
| | | are properly inserted.<br>Replace the fuses. |
| MGW x100 turns on, but the LEDs of an inserted power supply remain off. | The relevant power supply may not be properly inserted and does not contribute any power. | Properly insert the relevant power supply.<br>Insert additional power supplies. Each power supply contributes about 300W and each board requires about 40W. |
| Voltage LEDs on the Alarm board and the Error LED on the Power supply are off and the power supply appears to be working. | LED error. | |
| The Error LED on at least one power supply turns yellow.<br>At least one Voltage LED turns red on the Alarm board. | Power supply error. | Replace the relevant power supply. Do not operate MGW x100 units with less than four power supplies installed. |

## Connecting to MGW x100 via Serial Port and HyperTerminal

To connect MGW x100 to the Configuration PC, use the DB-RJ cable supplied by Optibase under catalog number WCA5972.

| The Problem | Possible Cause | Possible Solution |
|---|---|---|
| I cannot connect via the relevant host controller's COM1 port. | Did you connect the PC to a D-9 type connector labeled COMA or COMB at the rear? | Disconnect the PC from that port and connect it to the D-9 type connector labeled COM1 located on the Host A's front. Host A is installed in the slot labeled Control A and Host B is installed in the slot labeled Control B. |
| | The cable may not be properly connected. | Check the connection. Connect properly or replace the cable. |
| | Your PC's COM port may not be working. | Use a different COM port. If not available, have your PC's COM port replaced. |
| | HyperTerminal may be configured for a different serial port. | Verify the COM port to which MGW x100 is connected and open HyperTerminal's COM Properties screen. Choose the relevant COM port and configure as follows:<br>**Bits per second: 115000**<br>**Data bits: 8**<br>**Parity: None**<br>**Stop bits: 1**<br>**Flow Control: None or Hardware** |
| | Did you connect more than one NIC to the same network segment? | Connect each NIC is connected to a separate network segment. |
| | You may have connected the network segment | Make sure to connect the network segment, used for configuration and management, to the NIC labeled Gig. |

| | | |
|---|---|---|
| | used for management and configuration to the wrong NIC. | Ethernet B on Host A's I/O board (rear). |
| | The COM1 port on MGW x100 may not be working. | Replace the Host A service board (front). Host A is installed in the slot labeled Control A. |

## Connecting to MGW x100 via Telnet

| The Problem | Possible Cause | Possible Solution |
|---|---|---|
| I cannot log on to MGW x100 via Telnet despite using the correct IP address. | You may be using an unavailable network interface. | Connect the network segment used to communicate with MGW x100 to the Ethernet port labeled Gig. Ethernet B located on Host A (rear). Host A is installed in the slot labeled Control A. |
| | An internal error may have occurred. | Restart MGW x100. |
| | The PC that you are using may not be able to properly communicate with the network. | Verify that the PC in use is properly connected and configured. |
| | You may have connected more than one NIC to the same network segment. | Make sure to connect each NIC is to a separate network segment. |
| | Does the network connected to the relevant NIC perform properly? | Try pinging the IP address associated with the relevant NIC.<br>Contact your network administrator to assess the network's performance.<br>Replace the network cable.<br>If available, log on to MGW x100 via Host B.<br>Replace the relevant host controller board for Host A. |

## Temperature and Ventilation inside MGW x100

Some of the LEDs will not reflect the current status if the Alarm board is not installed.

If you do not have an Alarm board installed, we recommend manually checking if fans are turning fast enough.

| The Problem | Possible Cause | Possible Solution |
|---|---|---|
| A fan appears to be noisy. | The 'noisy' fan is faulty and may be turning too slowly. | Replace the respective fan tray. |
| The air outlet seems to have | One or more fans are running too | Replace the respective fan tray. |

| | | |
|---|---|---|
| decreased. | slowly. | |
| The MGW x100 unit seems too hot. | | Ensure sufficient cooling and circulation in the environment.<br>Check fan trays for 'noisy' fans and sufficient air outlet. Replace fan trays, if required.<br>Make sure that all blank panels are installed on empty slots. |
| The Fan LED on MGW x100's front and the Alarm board are red. | At least one fan tray is not properly inserted or has been removed.<br>At least one fan is running to slowly or has failed. | Make sure that all fan trays are properly inserted or replace the relevant fan tray. |
| The Temp LED on the Alarm board is red. | The Fan LEDs are off.<br>The Fan LEDs are red. | Ensure proper environmental conditions as explained above.<br>Check for missing or improperly inserted fan trays.<br>Locate fan trays with 'noisy' fans or decreased air output and replace it. |

## Using MGW EMS

This section lists errors and possible solutions that you may encounter while installing and using MGW EMS.

### Installing MGW EMS

| The Problem | Possible Cause | Possible Solution |
|---|---|---|
| I cannot install MGW EMS. | The relevant PC may have less than 200 MB free hard disk space. | Free up space, as you need at least 200 MB to ensure seamless installation. |
| | You chose not to update the already installed Java, Runtime Environment as prompted. | Uninstall the previous EMS version, and only then install the new version and make sure to update the Java Virtual Engine if you are asked. |
| | You may not have uninstalled a previous EMS version. | |
| I edited the default IP address while installing MGW EMS and the application seems to have stopped responding after I clicked Next. | This step can take several minutes. | Wait until the installation process continues. Refrain from repetitively clicking Next and do not close the Installation wizard. |
| Once installed, MGW EMS appears to be unstable. | You may not have uninstalled a previous EMS version. | Uninstall all EMS applications on your PC by using the Windows Add/Remove wizard.<br>If you are not able to uninstall, |

| The Problem | Possible Cause | Possible Solution |
|---|---|---|
| | | manually delete the EMS folder and then try uninstalling again to remove registry entries associated with EMS applications.<br><br>If you are not able to remove EMS applications, use a special uninstaller available from Optibase.<br><br>Restart your PC and remove and re-install MGW EMS. Make sure not to install more than one EMS application per PC. |

## Logging on

| The Problem | Possible Cause | Possible Solution |
|---|---|---|
| I cannot log on to MGW x100. | The relevant unit is switched off, disconnected or not reachable. | Verify that the desired unit is properly connected and running. For additional information, refer to the previous page.<br><br>It might be that the primary set of host controller and switch failed and you have to use the IP address associated with the redundant set to log on. |
| | The response may be slow. | Wait up to one minute, before you terminate the procedure. |
| | Your version of MGW EMS does not support the MGW x100 that you try to log on to. | If necessary, call for technical support to verify whether the version of MGW EMS installed supports the desired unit. Uninstall the current version and install an updated version. |
| | An error message indicates that the device associated with the specified IP address is not an MGW x100 or MGW x100 unit. | Verify that the IP address you specified is really an MGW x100 unit and that it supports your version of MGW EMS.<br><br>Use **Discover** to find units located in your PC's workgroup and VLAN that support your version of MGW EMS. |
| I try to locate MGW x100 on the network by using **Discover**, but no units are found. | The relevant units are not connected, not reachable or switched off. | Verify that the desired units are running and properly connected and configured. Refer to the previous page for further information. |
| | The relevant units may belong to a different workgroup and/or VLAN. | Only units that belong to the Management PC's workgroup and VLAN can be located. To use **Discover**, connect the Management PC and all relevant MGW x100 units to the same workgroup and VLAN. |
| I log on as **Super User**, but MGW x100 only logs me on as **Guest**. | There is already a Super User logged on. | Only one Super User can log at a time. Wait until the current Super User has logged off. To do so, log on as **Guest** and monitor the Current Users table available from the Login menu in MGW EMS. Once the Super User has logged off, use **Re-Login** to log on as **Super User**. |
| | You try to log on again as Super User | In this specific case, you can log on and remove the Super User entry from |

| | | |
|---|---|---|
| | after the connection was terminated. | the Current Users list by using **Force Logout**. |

| The Problem | Possible Cause | Possible Solution |
|---|---|---|
| I am logging on to a unit, but the user name appears to be invalid. | The user name and/or the password are incorrect. | Refer to the notes that you made or use one of the standard users to log on. User names and passwords are case sensitive. Make sure that **Caps Lock** is switched off on your keyboard. |
| | You may try to log on as a user that has been defined for a different MGW unit. | Users that you may have added using MGW EMS are specific to an MGW unit and not to your copy of MGW EMS. To log on and view currently defined users, use a default user **a**nd refer to the Users/Permissions table available from the Login menu in MGW EMS. |
| The connection was terminated while being logged on as **Super User**. | | 'Try' to log on as **Super User**; MGW x100 logs you on as **Guest**. In this specific case, you can remove the Super User entry from the Current Users list by using **Force Logout**. |

## Operating Channels

This section lists basic errors that you may encounter. In most cases, an alarm or error message will appear and define the error.

### General

| The Problem | Possible Cause | Possible Solution |
|---|---|---|
| The Hot Swap LED remains blue. | You just inserted the board or you opened an Injector/Ejector handle. | Wait until the Hot Swap LED is off and the Status LED turns green.<br>If you opened one of the Injector/Ejector handles by mistake, remove and then re-install the board. |
| The Status LED is red. | Board or slot error. | Check whether the associated I/O board has been installed opposite to the service board. The slot numbers at the front and the rear must match.<br>Remove this board and try installing in another slot.<br>If the Status LED turns red again, replace the Encoder Service board. If the Status LED turns green, re-install both the Encoder I/O and the Encoder Service boards in a different slot.<br>Check the pins inside the slot and on the board for mechanical damage. Call for technical support. |
| In MGW EMS, the board is labeled **Unknown** or the slot appears empty. All LEDs are | The board is not connected. | Make sure that the service board has been properly inserted and that the brackets are closed. |

| | | |
|---|---|---|
| off. | | |
| | The board was not recognized, slot error. | Try re-installing both the service and I/O boards in a different slot.<br>Verify that the relevant board is supported by your MGW unit. |
| MGW x100 becomes unstable. | Empty slots are not covered. | Use the slot covers provided with MGW x100 to cover all empty slots. |

## Encoding

| The Problem | Possible Cause | Possible Solution |
|---|---|---|
| The associated Channel LED is red and the Status LED is green.<br>The Channel LED labeled Active CH1 is associated with Encoder 1 and the Channel LED labeled Active CH2 is associated with Encoder 2 respectively. | Channel error. | On the Channels page, right-click the relevant channel and choose Show Error; an error message appears. For<br>Note that some encoders may only support one channel. |

## DVB Recasting and DVB Transrating

| The Problem | Possible Cause | Possible Solution |
|---|---|---|
| In MGW EMS, the channel indicates an error. The ASI In LED is off and the Status LED is green. | DVB source error. | Make sure that your source works properly and is stable.<br>Check the connection.<br>Replace the cable.<br>Try a different DVB-ASI input interface. |
| The ASI In LED and the Source LED on the DVB I/O board are green and the Demux LED is red. | Channel error. | On the Channels page, right-click the relevant channel and choose Show Error; an error message appears. |

## DVB Transcoding

| The Problem | Possible Cause | Possible Solution |
|---|---|---|
| In MGW EMS, the channel indicates an error. The relevant ASI In LED on the DVB Transcoder I/O board is off and the Status LED on the relevant encoder service board is green. | DVB source error. | Make sure that sources work properly and are stable.<br>Check the connection.<br>Replace the cable.<br>Try the second input interface. |
| The associated Channel LED is red and the Status LED is green. The Channel LED labeled **Active CH1** is associated to **Encoder 1** and the Channel LED labeled **Active CH2** to **Encoder 2** respectively. | Channel error. | On the Channels page, right-click the relevant channel and choose **Show Error**; an error message appears.<br>Note that some encoders may only support one channel. |

# Alarms

GW x100 displays open alarms associated with the following four severity levels:

- **Critical.** This severity level is currently not used.
- **Major.**
- **Minor.**
- **Warning.**

### To display a list of open alarms

- Click the button associated with the relevant severity level; the Alarms list appears and displays the respective alarms. The number on the button states the number of open alarms.
- If you are already in the Alarms list, go to **Severity Filter** and choose the desired severity level from the list.

Alarms disappear from the list once the problem has been solved.

### Info messages:

- In some cases, info messages may appear indicating that one or more parameters have changed, for example a LED status or channel parameters.

## Major

### Chassis

| Alarms | What it means | What to do |
|---|---|---|
| **Voltage Alarm.** | One of the voltage supplies (3.3, 5, 12 or -12V) has failed. | On the Platform page, under **Alarm Board (ALMI)**, click **PS Diag** ; a list appears displaying defective voltage supplies labeled with .<br><br>The affected power supply's Error LED turns yellow. |

## Network

| Alarms | What it means | What to do |
|---|---|---|
| **Loss of signal detected at network interface.** | The network connection has been lost; therefore MGW x100 stopped transmitting. | Make sure that your network is performing properly and that you have sufficient network resources available for the desired streaming tasks. |

## Boards

| Alarms | What it means | What to do |
|---|---|---|
| **Board unreachable.** | One of the encoders has been recognized, but cannot be reached. | Make sure that parameters input and output parameters are properly set.<br>Remove and re-insert the relevant board.<br>Check the board and slot for damaged pins.<br>Call for technical support. |
| **Board HW config error.** | The inserted I/O board is not compatible with the inserted service board, for example an Encoder I/O board was inserted in a DVB I/O board's slot. | |
| **DVB PAT error.** | The DVB stream PAT is corrupted or missing. | |
| **DVB PMT error.** | The DVB stream PMT is corrupted or missing. | |
| **Board unavailable.** | One of the encoders cannot be recognized, although it is installed. | Reset the relevant board.<br>Restart MGW x100 and try accessing this board again.<br>Switch MGW x100 off, remove the relevant board and check for damaged pins.<br>Call for technical support. |

## Channels

| Alarms | What it means | What to do |
|---|---|---|
| **Channel fault detected.** | An error occurred while transmitting. | The hot stand-by channel starts transmitting if you configured it on a different board.<br>Display the associated error message.<br>If this error resolves and you |

| | |
|---|---|
| | wish to return to the primary channel, go to the Channels list, right-click the primary channel and choose **Restore**. |

## Video and Audio Input

| Alarms | What it means | What to do |
|---|---|---|
| **Video loss of signal.** | The relevant I/O interface stopped receiving input signals. | Make sure that you use a reliable video source. |
| **Video illegal format.** | Incompatible or corrupted video signal. | Make sure that you use a video source that is compatible and reliable. |
| **Audio loss of signal.** | Loss of audio signal. | Make sure that you use a reliable audio source. |
| **Audio illegal format.** | Incompatible or corrupted audio signal. | Make sure that you use an audio source that is compatible and reliable. |
| **Incompatible video format.** | Incompatible video input. | Choose the correct video input or **Auto Detect**. |

## DVB Input

| Alarms | What it means | What to do |
|---|---|---|
| **DVB demultiplexer error.** | One or more programs might be corrupt or invalid and could therefore not be resolved. | Make sure that you use a reliable source. |
| **DVB stream bit-rate exceeded.** | The max bit-rate you specified has been exceeded. | Select the relevant DVB Recaster channel, click **Edit**, choose **DVB Input** and specify a higher value for **Max Bit Rate**. |
| **DVB TS continuity count error.** | Packets arrive in incorrect order or appear more than twice. | Make sure that the network and network interfaces are performing properly. If this error persists, call for technical support. |
| **DVB wrong IP detected on port.** | The protocol you try to specify is not available. | Make sure that the protocol you specify is available. |
| **DVB loss of signal.** | The DVB-ASI input interface stopped receiving input signals. | Make sure that you use a reliable video source and that this source is properly connected to the relevant DVB-ASI input interfaces. |

### Transcoder

| Alarms | What it means | What to do |
|---|---|---|
| **Decoder hardware error.** | The DVB Transcoder I/O board encountered a hardware error. | Make sure that I/O and service boards are properly installed.<br>If this error persists, call for technical support. |

## Minor

### Encoder

| Alarms | What it means | What to do |
|---|---|---|
| **Audio queue error.** | Buffering error, probably related to unstable audio input. | Make sure to use a reliable source. |
| **Video queue error.** | Buffering error, probably related to unstable video input. | Make sure to use a reliable source. |

### DVB

| Alarms | What it means | What to do |
|---|---|---|
| **DVB demultiplexer stream error.** | An error occurred while demuxing a stream. | Make sure that parameters you chose are available. |
| **DVB PID error.** | The specified PID is invalid, does not exist or corrupted. | |

## Warning

### Chassis

| Alarms | What it means | What to do |
|---|---|---|
| **Power module failure.** | A power supply has failed. | If the unit is in a different location to the Management PC, refer to Platform and Alarm Board to locate the defective power supply.<br>If you are next to the unit, you may also check which power supply's Error LED is yellow. |

| | | |
|---|---|---|
| **Fan failure.** | At least one fan is running too slowly, has failed or is missing. | |
| **Platform temperature overheat.** | The temperature in at least one area inside MGW x100 has exceeded the permitted limit of 55˚C. | This error may appear with **Fan** failure. |
| **Alarm module failure.** | The Alarm board has failed. | Reset or replace the Alarm board. |

## DVB

| Alarms | What it means | What to do |
|---|---|---|
| **DVB no data arrived on port.** | No DVB data are received for transcoding. | Make sure that your source is properly connected and stable.<br>Replace the cable.<br>Replace the source.<br>Call for technical support. |
| **DVB transport stream error.** | The bit-rate in a PID has been exceeded. | Specify a higher bit-rate. |
| **DVB loss of sync detected.** | Loss of the Transport stream's synchronization. | |

# Error Messages

This section lists and explains errors that might be resolved by users. Errors are not listed if they are self-explaining and point users to required steps. Each error appears with a reference number, for example **201001**, which consists of two parts:

- First 4 digits (**2010**): Refer to the error code.
- Last 2 digits (**01**): Refer to the affected slot. If the last two digits are **00**, the entire system is affected.

For a list of errors and possible solutions, refer to the associated MGW EMS help.

# Replacing Hardware Components

## Replacing a Board

The table below lists the board types, required board combinations and slots. For instructions on installing and removing boards, refer to the next page.

| Chassis Components | Description |
|---|---|
| MGW 1100 chassis | Accommodates one host controller, one switch, a Windows Media Server board and 5 service boards with corresponding I/O boards. Without Windows Media Server, you may install 6 service boards with corresponding I/O boards. Fans and power supplies are pre-installed. |
| 19" rack-mount chassis | Rack-mounts MGW 1100. |
| Host<br>MGCS-5500 Host Controller board (front)<br>MGCI-5500 Host I/O board (rear) | <br>Control (front)<br>Control (rear) |
| Switch<br>MGSS-1100 Switch board (front) | <br>Switch (front) |
| H.264 Encoder<br>MGES-5610 (front)<br>MGEI-5210A (rear) or<br>MGEI-5210D (rear) | <br>3 - 8 (front)<br>3 - 8 (rear)<br>3 - 8 (rear) |
| MPEG Encoder<br>MGES-5200 (front)<br>MGEI-5210A (rear) or<br>MGEI-5210D (rear) | <br>3 - 8 (front)<br>3 - 8 (rear)<br>3 - 8 (rear) |
| DVB Recaster<br>MGRS-5200 (front)<br>MGRI-5200 (rear) | <br>3 - 8 (front)<br>3 - 8 (rear) |
| DVB Transrater<br>MGTR-5200 (front)<br>MGRI-5200 (rear) | <br>3 - 8 (front)<br>3 - 8 (rear) |
| DVB Transcoder<br>MGES-5200 (front) or<br>MGES-5610 (front)<br>MGTI-5210 (rear) | <br>3 - 8 (front)<br>3 - 8 (front)<br>3 - 8 (rear) |

### To remove boards:

The host controller and the switch are not hot swappable. Before removing these boards, MGW 1100 must be switched off.

1. If you remove a hot swappable board and MGW 1100 is running, slightly push the red button of the right ejector/injector handle down. When the Hot Swap LED turns blue, the board is ready to be removed.

2. Use the 5100′ Phillips screwdriver to loosen the screws on the left and the right side of the relevant slot cover on MGW 1100's front panel. Loosen

the screws only until you feel a click. If you unscrew any further, you will not be able to open the injector/ejector handles.

3. Push the red buttons on the ejector/injector handles at the same time and open the ejector/injector handles (Figure 1); the board unplugs.

4. Remove the relevant board.

5. If you do not want to install a new board, cover the open slot with a slot cover and close the ejector/injector handles; you hear a click when the slot cover has been properly inserted.

6. Tighten the slot cover's screws on the top and the bottom if used.

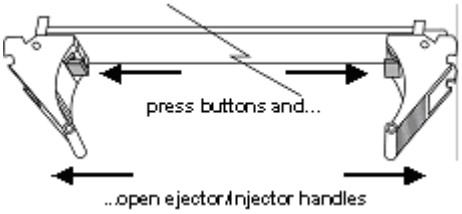



**Figure 58 .Opening the Ejector/Injector Handles**

When you replace the DVB Transcoder I/O board, the associated encoder service board resets after the new board has been installed.

Make sure to cover all empty slots with slot covers.

## To install boards:

The host controller and the switch are not hot swappable. Before installing these boards, MGW 1100 must be switched off.

1. Insert the new board into the relevant slot.

2. Plug it into the bus connector and close the ejector/injector handles; you hear a click and the Hot Swap LED turns blue when the board has been properly inserted. The board must line up with the chassis surface.

3. Use the 5 100 ′ Phillips screwdriver to tighten the screws on the top and the bottom of the I/O board.

4. Wait until the Hot Swap LED turns off before using this board.

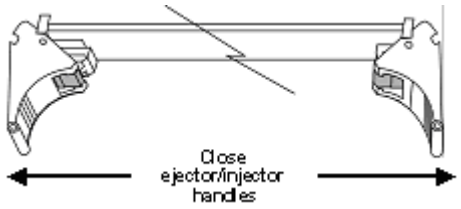



**Figure 59 .Closing the Ejector/Injector Handles**

When you replace the DVB Transcoder I/O board, the associated encoder service board resets after the new board has been installed.

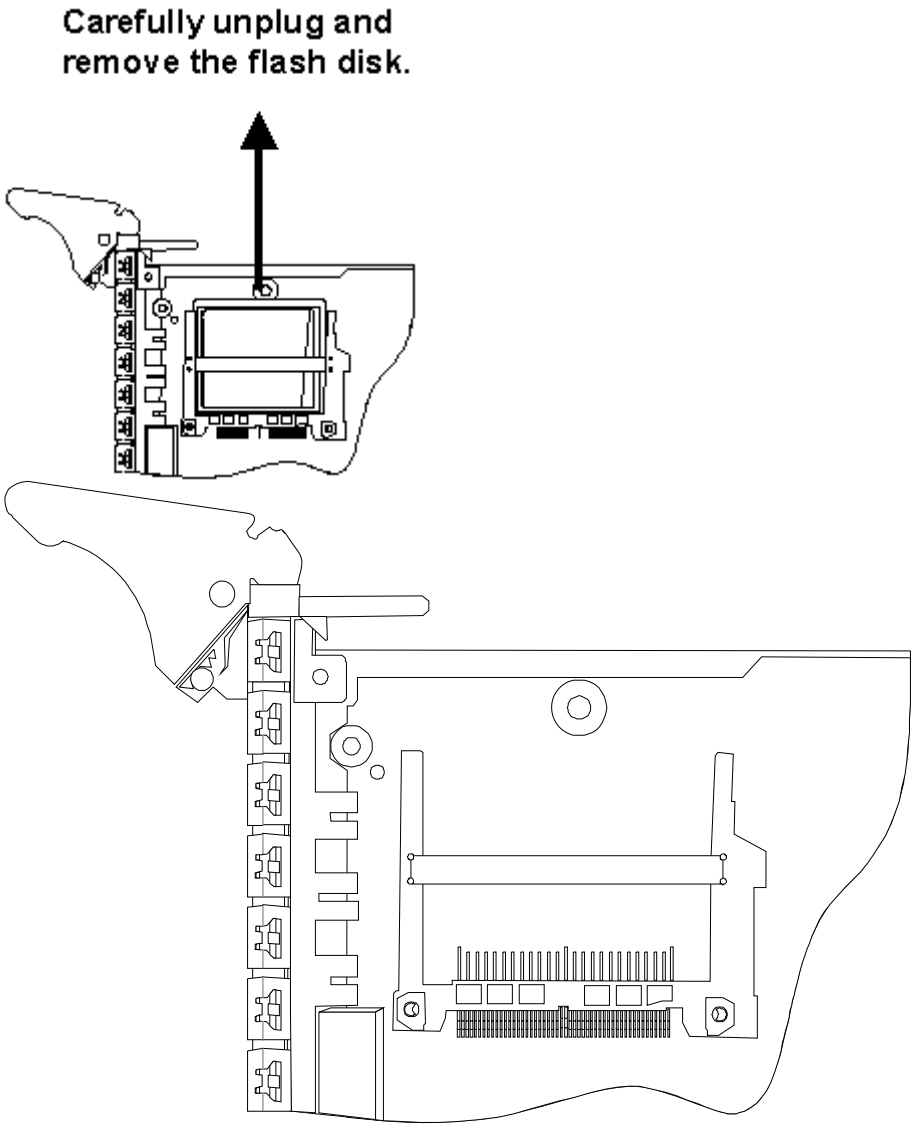
Make sure to cover all empty slots with slot covers.

## Replacing the Host Controller's Flash Disk

You may replace the host controller’s flash disk only if you have been instructed to do so by Optibase's customer support.

The host controllers are installed in the slots labeled **Control A** and **Control B** (when applicable) and referred to as **Host A** and **Host B** respetively.

The flash disk is located in the host controller’s I/O board's upper left corner and hosts the system software.




1. Stop all channels and switch MGW x100 off.
2. Remove the relevant host controller I/O board from its slot as explained on the previous page.
3. Carefully unplug and remove the flash disk from its slot as illustrated.
4. Insert the new flash disk into the slot and carefully plug it in.
5. Re-install the relevant board into its slot and switch MGW x100 back on, if you replaced the host controller I/O board's flash disk.

## Replacing Fuses

Fuses are located at the rear next to the power switch. If necessary, purchase the following fuses from Littlefuse:

- **For AC powered platforms:** 2′Littlefuse, catalog number 218010 (10A 250V)
- **For DC powered platforms:** 2′Littlefuse, catalog number 314020 (20A 250V)
- For further information, refer to **http://www.Littlefuse.com**.

### AC powered Platforms

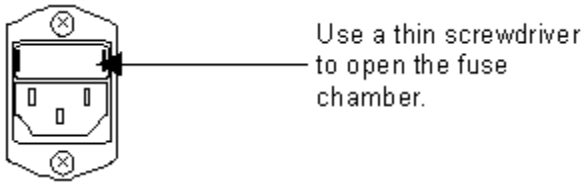



**Figure 60 .The Fuse Chamber and the Power Inlet on AC powered Platforms**

1. Make sure that MGW x100's power switch is in **Off (0)** position, unplug MGW x100 from the power outlet and then disconnect the power cord.
2. To open the fuse chamber, insert a thin screwdriver into the slit and gently pull the fuse tray outwards. You cannot remove the fuse tray.
3. Replace the two fuses and gently close the cover. The fuse chamber is closed when you hear a click.

### DC powered Platforms

1. Make sure that MGW x100's Power switch is in **Off (0)** position, disconnect MGW x100 from the DC power outlet and then disconnect the 12AWG copper conductors.
2. Open the fuse chamber by unscrewing the cover. The fuse chamber is located on the rear above the connectors and below the power switch.
3. Replace the fuse and close the fuse chamber.

To replace flash disks and fuses, use only spare parts supplied or approved by Optibase. Other spare parts may damage MGW x100 and void the warranty.

## Replacing a Power Supply

The figure below illustrates the location of MGW 1100's power supplies.

1. Use a Phillips 5100′ screwdriver to loosen the screw in the lower left corner and the one to the right of the power supply's injector/ejector handle.
2. Push the metallic button on the right side of the inject/eject handle down and carefully pull; the power supply unplugs and can be removed. The Power LED turns off and the Error LED turns yellow.
3. Remove the power supply from the slot.
4. Carefully insert the new power supply and close the injector/ejector handle. You hear a click when the power supply is properly inserted. If MGW 1100 is running, the Power LED turns green.
5. Tighten the screw in the lower left corner; the power supply is replaced.

- Replace only one power supply at a time or switch MGW 1100 off while replacing power supplies.
- Make sure that you never insert DC power supplies into an AC powered platform and vice versa.
- Make sure that you never insert AC and DC power supplies into the same platform as this will severely damage MGW 1100 and cause personal injury.
- Verify whether your power outlet is AC or DC. Connecting AC power supplies to DC power outlets or vice versa will severely damage MGW 1100 and may cause personal injury.

# Technical Support

Optibase's Silver and Gold support programs cover software and hardware services and includes direct support by Optibase technical marketing engineers. For additional information, contact the reseller or distributor who sold you your Optibase product.

The Optibase Knowledge Base is part of the Optibase Service Portal. It offers technical tips and information about Optibase products. The knowledge base is available at http://www.optibase.com/serviceportal (http://www.optibase.com/portal/default.aspx).

If you purchased your Optibase product directly from Optibase Inc. or Ltd., contact Optibase's technical support as follows:

Optibase International

http://www.optibase.com/serviceportal
(http://www.optibase.com/portal/default.aspx)

Optibase USA

http://www.optibase.com/serviceportal
(http://www.optibase.com/portal/default.aspx)

Tel: (800) 451 5101 (toll free)

(650) 230 2400

Fax: (650) 691 9998

# Hardware Warranty

**Optibase Limited Lifetime Hardware Warranty Terms**

Subject the terms and conditions specified bellow your Optibase product (the "Product") is warranted against defects in material and workmanship (the "Warranty") for a period of 12 (twelve) months following the Delivery Date (the "Warranty Period"). The Warranty provided to you hereunder supersedes any warranty which may be provided to you by the original manufacturer of the Product.

Optibase Ltd. and/or Optibase Inc. (collectively "Optibase") will repair or replace (at its option) any defective part during the Warranty Period, provided that (i) the Warranty remain in force. Your dated sales receipt or invoice shall be considered as the delivery date of the Product form Optibase's premises to your designated address (the "Delivery Date"); (ii) your Product unit carries a serial number on its rear panel; (iii) you received from Optibase Customer Service department a Return Materials Authorization (RMA) number. No Product unit will be accepted for repair without RMA number; and (iv) the entire Product unit is returned to Optibase by prepaid shipping in Optibase's original packing.

Optibase will not be responsible for (i) any damages resulting from the use, maintenance or installation of any Product; or (ii) for the incorporation of any spare or replacement parts not approved by Optibase.

Without limiting the generality of the foregoing, Optibase reserves the right to refuse to provide any services under the Warranty for any Product that, in Optibase opinion, has been subjected to any abnormal electrical, mechanical, or environmental abuse, or shows signs of modification by an unauthorized person or company. Call your local distributor or reseller for out-of-warranty repair charge estimates prior to returning a product.

You acknowledge that the product licensed or sold hereunder, which may include technology and software, are subject to the export control laws and regulations of the United States ("U.S.") and/or any other country in which the product is received. You agree that you will not knowingly transfer, divert, export or re-export, directly or indirectly, the product, including the software, the software source code, or technical data (as defined by the U.S. Export Administration Regulations) restricted by such regulations or by other applicable national regulations to any person, firm, entity country or destination to which such transfer, diversion, export or re-export is restricted or prohibited by U.S. or other applicable law, without obtaining prior authorization from the U.S. Department of Commerce and other competent government authorities to the extent required by those laws.

# Index


**AC powered Platforms • 186**

**Accessing MGW x100 • 57**

**Accessing MGW x100's Command Line Interface • 39**

**Adapting Configurations to different Units • 102**

**Adding Channels • 90, 93**

**Adjusting Parameters while playing a Channel • 126**

**Adjusting Parameters While Playing a Channel • 122**

**Advanced Audio Encoding Parameters • 107, 113, 115, 122, 126**

**Advanced Video Encoding Parameters • 108, 123**

**Advanced Video Input Parameters • 81**

**Alarms • 144, 176**

**Analog Audio Input Parameters • 82**

**Analog I/O Board - MGEI-5210A • 159**

**Analog Video Input • 79**

**ASI Input • 129**

**Audio Bit-Rates • 156**

**Audio Encoding Parameters • 114, 125**

**Audio Modes and Bit-Rates • 153**

**Board Parameter Tools • 105**

**Boards • 177**

**Buttons and Displays • 68**

**Channels • 177**

**Chassis • 147, 176, 179**

**Choosing Channel Components • 92**

**Completing the Channel Wizard • 94**

**Configuring MGW x100 • 39**

**Configuring the Management PC for the Network • 50**

**Connecting Host Controllers with Switches • 32**

**Connecting MGW 1100 to the Power Supply • 32**

**Connecting MGW x100 • 32**

**Connecting to a Network for Management • 33**

**Connecting to MGW x100 via Serial Port and HyperTerminal • 169**

**Connecting to MGW x100 via Telnet • 170**

**Connecting to Networks and Devices for the Output • 33**

**Connecting Video and Audio • 35**

**Creating and Editing a Channel Profile • 90**

**DC powered Platforms • 186**

**Defining a Channel • 91**

**Digital Audio Input Parameters • 84**

**Digital I/O Board - MGEI-5210D • 159**

**Digital Video Input • 83**

**Dimensions • 149, 150, 159, 161, 162**

**DVB • 179, 180**

**DVB I/O Board Interface (Rear) • 24**

**DVB I/O Boards • 87**

**DVB Input • 127, 178**

**DVB Input - Transcoding • 161**

**DVB Recaster and DVB Transrater • 22**

**DVB Recaster and DVB Transrater Service Boards • 84**

**DVB Recaster/Transrater • 162**

**DVB Recaster/Transrater Service Board Interface (Front) • 23**

**DVB Recasters and DVB Transraters • 84**

**DVB Recasting and DVB Transrating • 174**

**DVB Recasting/Transrating Parameters • 127**

**DVB Transcoder • 25**

**DVB Transcoder I/O Board Interface (Rear) • 26**

**DVB Transcoder I/O Board Parameters • 89**

**DVB Transcoders • 88**

**DVB Transcoding • 175**

**DVB Transcoding Parameters • 129**

**Editing Channels • 97**

**Editing Interface Parameters • 65**

**Electrical Characteristics • 148**

**Enabling/Disabling Backup Channels • 49**

**Encoder • 179**

**Encoder Analog I/O Board Interface (Rear) • 20**

**Encoder Digital I/O Board Interface (Rear) • 21**

**Encoder I/O Boards • 78, 104**

**Encoder Service Board (Front) • 25**

**Encoder Service Board Interface (Front) • 19, 25**

**Encoder Service Boards • 89**

**Encoders • 75, 89**

**Encoding • 174**

**Encoding Parameters • 94, 104, 129**

**Enviornmental • 147**

**Error Messages • 181**

**Forcing a User Out • 60**

**Front Panel • 11**

**General • 173**

**General Tasks • 27**

**H.264 Encoder • 12, 152**

**H.264 Encoder Service Boards • 76**

**H.264 Encoding Parameters • 107**

**H.264 Pass Through Parameters • 129**

**Hardware Overview • 11**

**Hardware Warranty • 189**

**Host Controller • 16**

**Host Controller (front) • 16**

**Host Controller Boards • 73**

**Host Controller I/O Board Interface (Rear) • 17**

**Host Controller Units • 149**

**Host I/O Board - MGCI-5500 • 150**

**Host Service Board - MGCS-5500 • 149**

**I/O Board - MGRI-5200 • 162**

**I/O Board - MGTI-5210X • 161**

**If you added a Hot Stand-By Channel • 93**

**In Case of Problems • 144**

**Input Interface • 161, 162**

**Input Parameters • 93, 104, 129**

**Input Signal • 162**

**Input Signals • 159, 160**

**Input/Output Interfaces • 149, 150, 159**

**Installation Guide • 5**

**Installing and Removing Boards • 168**

**Installing Hardware • 27**

**Installing MGW EMS • 50, 171**

**Installing Service and I/O Boards • 28**

**Installing Software • 50**

**Intel Switch • 151**

**Interface Table • 64**

**Interphase • 151**

**IP Differentiated Services • 138**

**Live Encoder • 18**

**Live Encoding Parameters • 104**

**Live Input • 159**

**Logging Off • 60**

**Logging on • 172**

**Logging on to a different Unit or as a different User • 60**

**Logging on to MGW x100 • 58**

**Logo Insertion • 111, 117**

**Main Features • 6**

**Main Window Overview • 61**

**Maintenance • 167**

**Major • 176**

**Management • 149**

**Managing Configurations • 98**

**Managing Templates • 98**

**MGI Analog Audio Cable - WCA5196 • 165**

**MGI Analog Audio Cable - WCA5197 • 164**

**MGI Analog Audio Cable - WCA5199 • 165**

**MGW 1100 Components • 8**

**MGW EMS - Managing Software Versions • 52**

**Minor • 179**

**MPEG Encoder • 14, 156**

**MPEG Encoder Service Boards • 77**

**MPEG Encoding Parameters • 122**

**MPEG-1/2 Transrating • 128**

**My Network Settings • 44, 47, 48**

**Network • 177**

**Network Interfaces and Default Settings • 48**

**Network Protocols • 149**

**Operating Channels • 143, 173**

**Output Signal • 161, 163**

**Peripheral Components • 10**

**Physical • 147**

**Physical Dimensions • 152, 156, 162**

**Pinout Specifications • 164**

**Power Supply • 10**

**Previewing Sources for a Different Program • 89**

**Previewing Sources for the Current Program • 89**

**Processing Parameters • 94**

**Rack-Mounting MGW x100 • 27**

**Rear Panel • 11**

**Recovery from a NIC Failure • 67**

**Removing Channels • 97**

**Replacing a Board • 182**

**Replacing a Power Supply • 187**

**Replacing Fuses • 186**

**Replacing Hardware Components • 182**

**Replacing the Host Controller's Flash Disk • 184**

**Reports • 145**

**Required Tools • 27**

**Safety Instructions • 2**

**Safety Standrads • 148**

**SAP Service • 93, 122, 126**

**Saving the new Channel as a Template • 94**

**Secondary Stream Audio Parameters • 116**

**Secondary Stream Targets • 139**

**Secondary Stream Video Parameters • 107, 112**

**Service and I/O Boards • 12**

**Service Board - MGES-5200 • 156**

**Service Board - MGES-5610 • 152**

**Service Board DVB Recaster - MGRS-5200 • 162**

**Service Board DVB Transrater - MGTR-5200 • 162**

**Setting Channel Parameters • 93**

**Setting Network Interface Redundancy • 66**

**Setting Network Parameters • 48**

**Setting NTP (Network Time Protocol) • 71**

**Setting SAP (Session Announcement Protocol) • 69**

**Standard Compliance • 152, 156, 162**

**Stopping Channels • 143**

**Streaming Format • 152, 157**

**Switch • 151**

**Switch Boards • 75**

**Switching on and Power Supply • 168**

**System Components • 8**

**System Overview • 6**

**System Requirements • 50**

**System Specifications • 146**

**Target Parameters • 94, 136**

**Technical Support • 188**

**Temperature and Ventilation inside MGW x100 • 170**

**The Boards Page • 61**

**The Channels Page • 62**

**The Platform Page • 63**

**Tools • 67, 73**

**Trademarks and Copyright • 4**

**Transcoder • 179**

**Transmitting Channels • 143**

**Troubleshooting • 168**

**UDP Targets • 136, 140**

**Unit Parameters • 64**

**User Manual • 56**

**Users • 57**

**Using HyperTerminal • 39, 47**

**Using MGW EMS • 171**

**Using Telnet • 46**

**Version Management • 141**

**Video and Audio Input • 178**

**Video Bit-Rates • 152, 156**

**Video Encoding Parameters • 107, 122**

**Video Resolutions • 152, 157**

**Viewing a list of current Users • 60**

**Viewing a list of permitted Users • 60**

**Viewing and Setting Service Parameters • 73**

**Viewing Channels • 95**

**Warning • 179**

**Where to find Error Messages • 144**

**While Installing and Configuring MGW x100 • 168**

**Working with several Units • 58**